The Mining Journal

LONDON, MAY 2, 1958

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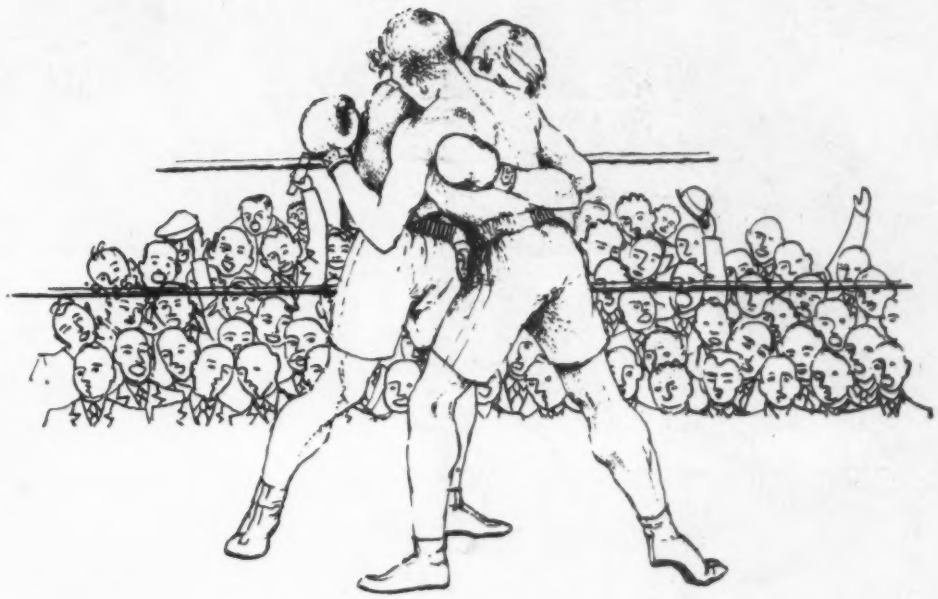
The Great Attraction



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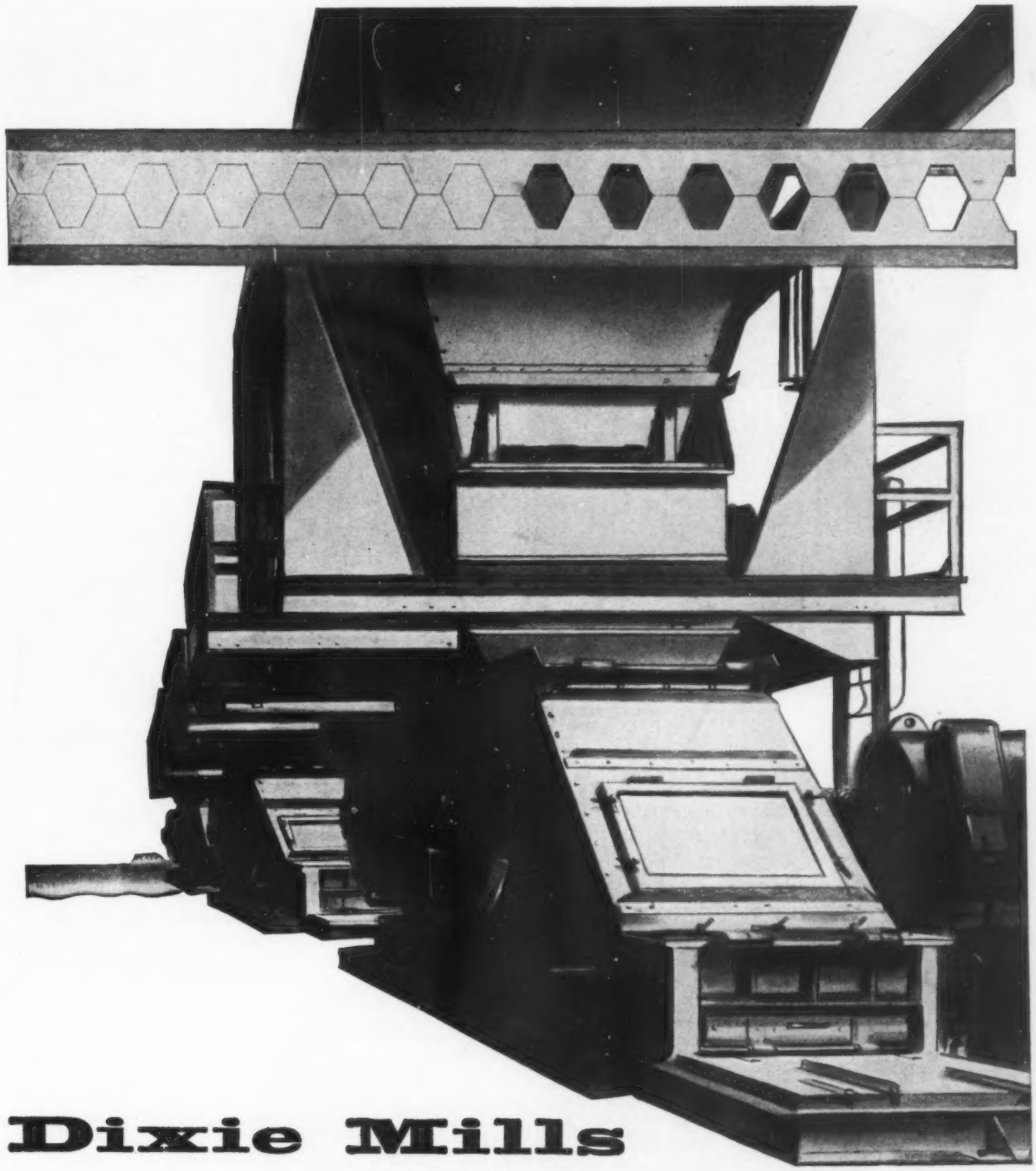

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The Mining Journal

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In this issue . . .

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In Search of Dollar Orders

LAST year we saw Mahomet come to the mountain, in the shape of a trade mission from Canada crossing the Atlantic to explore the possibilities of buying more from Britain—perhaps the most remarkable example of purchasers in search of suppliers which the world has seen!

"Now it's up to Britain", commented *The Mining Journal* in December, following the departure of the Canadian Trade Mission after its highly successful visit. It is pleasing to record that no time has been lost in following up this unique opportunity, for a strong trade delegation from the United Kingdom is now visiting Canada under the leadership of Sir William Rootes. The delegation, which left London on April 24, will undertake a coast-to-coast tour, holding discussions with the Federal and Provincial Governments, the U.K. High Commissioner and Trade Commissioners, the Dollar Sterling Trade Council, and the newly-established regional committees of leading Canadian industrialists.

The Canadian Trade Mission is clearly in no doubt as to the ability of the U.K. to meet Canada's import requirements to a greater extent. In his report to the Canadian Metal Mining Association, Mr. V. C. Wansbrough summarized the Mission's salient impressions as follows:—

(1) British manufacturers are clearly in the very forefront in the excellence of their products and their modern production methods. This certainly applies to heavy machinery of all types, electrical apparatus, earth moving equipment, conveyor equipment, and to every kind and variety of productive machinery.

(2) Their plant "housekeeping" is of the highest order.

(3) The British worker of all ranks is doing a hard and honest job. The Mission saw no evidence of loafing, slacking or "soldiering".

(4) From conversations with a broad cross-section of industrial workers and officials, it became clear that there was a deep and widespread interest in and enthusiasm for Canada, the Trade Mission, and the prospects of increasing British trade with the Dominion.

(5) Keen interest was displayed in the potentialities of the Canadian market, especially for items of heavy machinery, electrical equipment, earth moving and conveyor equipment, transportation equipment, and similar types of product. In fact, more than 1,000 British manufacturers, grasping the importance of the Mission, insisted on making direct contact with its members.

(6) Many British manufacturers were free, able and willing to to attempt to invade seriously and to capture a good sector of the Canadian market in a way which had not previously been possible.

(7) British manufacturers are much more fully aware now than before of the need to adapt their goods and products to the requirements of Canadian conditions, especially the climatic variations and Northern American engineering standards, as well as to the buying habits, tastes and

preferences of the Canadian customer. They also understand that follow-up service and the availability of spare and repair parts are essential for any serious attempt to capture and retain Canadian custom.

(8) British manufacturers for the most part readily acknowledge that selling has not been their strong point.

The Mission advised manufacturers not to rely too heavily on agents in Canada, but first to send out their "top brass" to see for themselves and make their own appraisal of the market potential, as well as to make useful personal contacts. British manufacturers were further advised to send out their top engineers and sales executives, and to keep these men in Canada for at least six months, so that they could experience for themselves the variety and range of climatic conditions.

Officials of the U.K. Government were urged to relax currency restrictions, so that bona fide representatives of British firms could stay for longer periods in Canada. This advice was well received and the Mission believes that it will be acted upon.

The Canadian Trade Mission was essentially a fact-finding mission, intended to lay the foundations for an enduring expansion of trade between the two countries. Continuing with the same metaphor, it might be said that the task of the British delegation now in Canada is to build the piers on which the bridge over the dollar gap will ultimately be constructed by the collective efforts of manufacturers.

The success of the Conservative Party in the recent election ensures that the expansion of trade between Britain and Canada will continue to rank high in the Dominion Government's plans, since it was Mr. Diefenbaker himself who conceived the idea of bringing the Canadian economy into better balance by placing more business with Britain. The desirability of reducing the Dominion's present dependence on the U.S., which now accounts for two-thirds of every trading dollar, has been underlined by the impact of the American recession on the Canadian mining and petroleum industries.

Whatever difficulties may be encountered by Mr. Diefenbaker in his expressed intention of switching 15 per cent of Canadian imports to the United Kingdom, the opportunities for British industry can scarcely be overestimated. Sir William Rootes, chairman of the Dollar Exports Council, has given a new target of $1,000,000,000 a year for exports to Canada—twice the present level—which he evidently regards as entirely practical. If this can be achieved, the currency crises which have been such a deplorable feature of Britain's post-war economy would be banished for ever.

DEVELOPING SOUTH AFRICA'S CHROMITE

In an article on chrome ore in South Africa, the current issue of Barclays Bank D.C.O.'s *Overseas Review* says that the chromite deposits there are probably the most extensive in the world. Although the occurrence of chrome ore in the Union had been known for many years previously, actual production of chromite commenced only in 1921 when a total of 1,188 tons was produced in the Transvaal at an estimated overall value of £400.

Regular production commenced in 1924 with an output of 5,040 tons for that year. Production subsequently expanded rapidly and in 1938 the annual output had reached 195,000 tons. Ten years later, by the close of 1947, this figure had more than doubled, to bring total production to no less than 411,000 tons. Of this total 327,000 tons were exported (the f.o.b. value being £757,000), of which 284,000 tons went to the United States.

In 1956 output was up to 691,000 tons, of which 612,000 tons were exported and for the period January to September of 1957—the latest period for which figures are available—exports of chrome ore to the United States totalled 399,000 tons, with an f.o.b. value of £1,930,000. There are approximately 22 producers. Indeed, if the important but unknown production figures of the U.S.S.R. are excluded, South Africa today ranks second only to Turkey amongst the largest producers of chrome ore. The chromite deposits in the Transvaal are probably the most extensive in the world.

The Union's ore occurs in two main areas of the country, namely the Eastern (Lydenburg) belt, where numerous parallel seams have been traced intermittently over a distance of some 55 miles; and the Western (Rustenburg) belt, where numerous beds extend westerly and north-westwards for a distance of some 70 miles. Deposits are also known to exist in Natal and Zululand.

South African chrome ore is of medium grade, containing 44 to 48 per cent chrome, but can be concentrated to give higher grades. The available reserves of chrome ore, irrespective of grade, have been unofficially and conservatively estimated at 200,000,000 tons.

DEVELOPING INDIA'S ATOMIC ENERGY

Speaking in the Lok Sabha, New Delhi, recently, the Prime Minister of India, Mr. Nehru, said that it will be possible to start the first atomic power station in India in 1962. He added that the government had drawn up an as yet incomplete plan for the development of atomic energy.

In so far as progress in atomic energy research is concerned, it is of interest to note that India is now able to supply radio-active iodine, phosphorus and other materials for use in biological research. Although an atomic power plant is being designed, the principal source of Indian power continues to be cowdung, some 80 per cent of power in the country being derived from this source.

The Prime Minister pointed out that at the existing rate of consumption India's power resources might last for approximately three centuries; if the power consumption rate of the United States were applied to India, however, the country's potential would be consumed in a little over three decades.

The overall picture of India's atomic energy developments shows that the first reactor, Aspara, which began operations on August 4, 1956, is now working two shifts and shortly will be working on a three-shift basis. Requests for radio isotopes have been met to a large extent. The Canada-India reactor is expected to be ready towards the end of 1959, and from this source it will be possible to produce the full range of radio-active isotopes, including radio-cobalt.

The Prime Minister's views were enhanced by Dr. H. J. Bhabham, chairman of the Atomic Energy Commission of India, when he pointed out at the Third Defence Science Conference in New Delhi that India's atomic energy resources gave rise to optimism. Despite the higher capital cost of an atomic power station in comparison with a conventional installation, the low running cost of the former would make the cost per unit of electricity very competitive. If the cost of atomic fuel were taken into consideration, the cost of atomic power per unit would be reduced by at least 50 per cent of the present estimated cost.

Currently, India has offered to supply thorium to the International Atomic Energy Agency.

Cage-raising Practice at Nkana

The cage-raising method used in the Mindola section of the Nkana Mine, on the Copperbelt, has reduced by two-thirds the costs of mining vertical raises. The following article is condensed from a description of the system that appeared in "Rhokana Review", Vol. 7, No. 4.

BEFORE the advent of cage-raising at Nkana, the mining of a steep or vertical raise was a difficult and tedious operation.

Because this type of operation was not very practical both from the mining and the safety point of view, steep connections between two points of, say, 250 ft. apart, were negotiated by winzing from the top downwards. Simply, a small shaft was sunk in almost the same manner as a large shaft would normally be sunk from surface. This, though costly, was safe in comparison to raising by the old method where the miner and his gang were required to climb chain ladders, and raise pins carrying all the necessary mining equipment and, at the same time, being exposed to the danger of falling rock.

The introduction of cage-raising has, therefore, made raising a considerably safer operation which can be carried out at more than twice the speed with far less expense.

Method

Briefly, the cage-raising method of mining is that a diamond drill hole 3 in. in diameter is drilled down from a point A to a point B usually about 250 ft. apart. A 50-h.p. electric hoist and a small headframe is installed at the top (point A) and fitted with a ½-in. dia. non-spin wire rope.

The first round is drilled from the drilling platform which is at the top of the cage at B. The cage is brought into full commission for the second round : the ½-in. dia. rope from the electric hoist on the level 250 ft. above is led down the diamond drill hole and attached to the top of the cage. The drilling crew enters the cage which is raised, after the official bell signals are given, to the required position where it is anchored to the side wall. The crew climb to the upper deck and drill the round.

On completion of drilling operations the cage is lowered and drilling equipment removed. Explosives are loaded and the miner and two helpers return to the face and charge up.

The cage is then lowered, detached from the wire rope and removed to a place of safety. The hoist rope is pulled up the diamond drill hole to A where it is removed from the hole. After every blast the miner simply attaches his cage to the wire rope and rides up to the face again.

Other Factors

The face is ventilated by means of compressed air. A 1-in. hose is attached to a Y-piece pipe manifold at the top of the diamond drill hole A and compressed air is fed down the hole. The top of the hole is temporarily sealed off to prevent air from short circuiting upwards. Water is added to the air before blasting takes place and converts the ventilation line into a waterblast. Ventilation by this method has proved most satisfactory.

The miner keeps in constant touch with his hoist driver by means of the regulation code of signals which are given on an electric bell system.

Clearing Blasted Rock

After the cage has been raised into position to drill the next round, ground broken by the blast is loaded into cars by a mechanical shovel loader. The speed of the loader is such that all the ground is removed before the new round is drilled. As a safety precaution the loader is fitted with a steel hood directly above the operator's head which protects him from anything which may fall down the raise.

Continuous Raising

In the event of a raise continuing after holing the first lift, trap doors are installed over the holing and this level established as the place of access for cage and crew. At blasting time, the trap doors are opened, allowing the ground to pass to the level below. When the blast is over the doors are closed again and the mechanical loader is free to perform its duties on the lower level without interference. In this way, a raise may continue indefinitely from level to level and cleaning operations remain at the bottom.

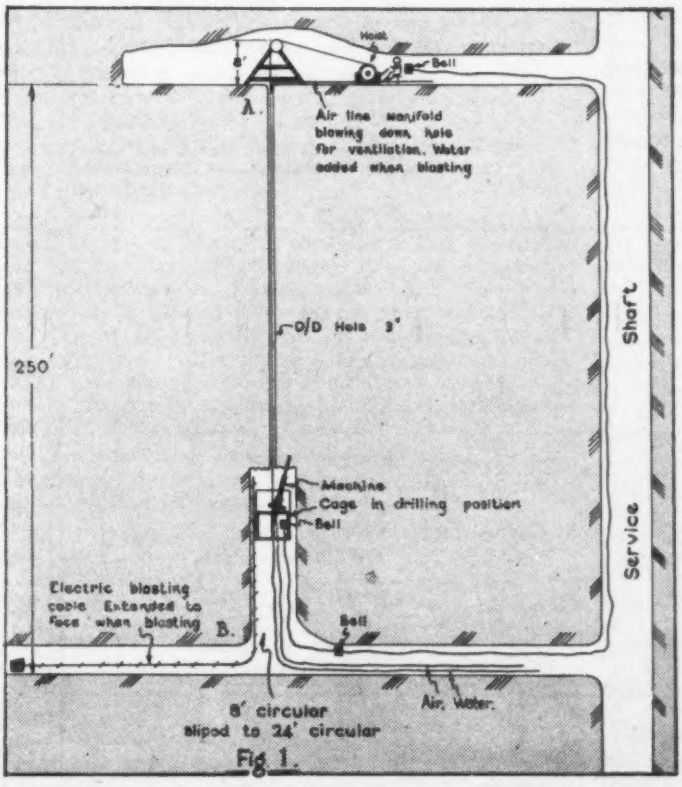


Fig. 1.

A diagrammatic sketch showing how the cage-raise is mined

Blasting time was 9.31 a.m. At left, the explosion at 9.31.2 a.m.

The Ripple

AT 9.31 a.m. on Saturday, April 5, the largest man-made, non-nuclear explosion in history was set off in Seymour Narrows, 100 miles north of Vancouver, British Columbia, in an effort to remove the twin peaks of ill-famed Ripple Rock, a navigational hazard on Canada's west coast for 100 years. Since 1875 the hazard took a toll of 120 ships and 114 mariners.

The blast was successful. Designed to remove enough of the peaks to allow 40 ft. of water at low tide, preliminary soundings indicated that 47 ft. of clear water was left.

The blast, which had attracted attention throughout the world, culminated many years of research and study, at least two unsuccessful attempts to remove the hazard, and two-and-a-half years of actual work which was, in the main, a mining development.

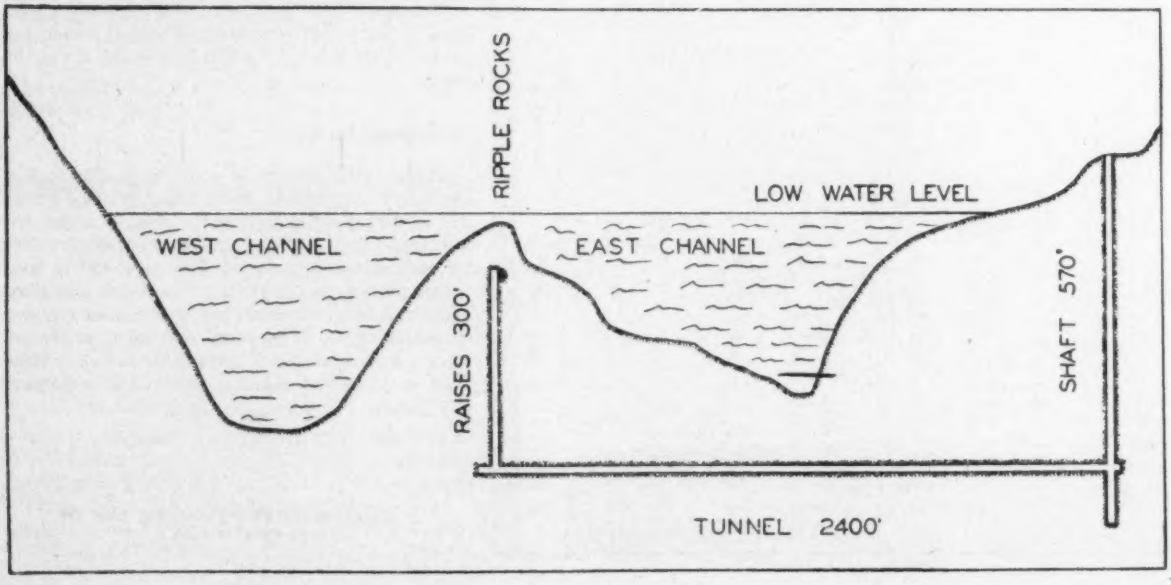
When the blast was discharged, a total of 2,749,824 lb. of specially-manufactured explosives, Nitramex 2H, supplied by the Dupont Co. was set off. The explosive removed over 370,000 tons of rock and 320,000 tons of water, to cut off over 40 ft. of the 375-ft. high mounds of rock. The cost of the project, which was started in October, 1955, is estimated at $3,100,000. Contractors on the job were Northern Construction Co. and J. W. Stewart Ltd., and Boyles Bros. Drilling Co. Ltd. Consulting engineers were Dolmage and Mason, Vancouver, B.C.

The twin peaks which formed Ripple Rock were hump-like projections, 3,000 ft. long, 1,500 ft. wide at the base, rising from 325 to 400 ft. from the sea bottom. The summit of the north rock reached to within 9 ft. of the surface of the water at low tide and the south rock within 20 ft.

Studies which proceeded from 1905 to 1941 concluded that drilling and blasting from a floating plant was feasible and relatively inexpensive. Estimated cost to remove the rocks to a clear 27 ft. at low tide was $167,500. A contract was let to B.C. Bridge and Dredging Co. Ltd. in 1942 to proceed on the basis of these conclusions. A drill barge, 150 ft. long, using six concrete anchors and costing $160,000 was constructed. All attempts from this barge ended in failure as the turbulence which had caused large ships to veer off course set up vibrations in the anchor cable and thence to the barge to preclude successful drilling. By the summer of 1943 some $500,000 had been spent before work was suspended without any practical progress having been made. The project was postponed until further studies solved the problem of anchoring the barge.

In 1945 a second attempt was made. The drill barge was equipped with side anchor cables attached to two

The relative positions of shaft, tunnel and raises, and the channels on either side of Ripple Rock



At right, the vast increase in effect seen at 9.31.11 a.m.

overhead cables to complete the anchorage system. They provided the stability to allow useful work during the slow water period and in August and September 139 holes were drilled on the North Rock for an average depth of 5 ft. Of these, 93 were blasted for a probable break of 3,000 tons, the rest being lost. A minimum of 1,500 holes was estimated to be required to complete the operation. Cost of the work was covered by a vote of $300,000 but a request for an additional $125,000 was refused and the contract was terminated. Total cost at September, 1945, was $802,000.

Pressure continued to be applied to the government to have the peaks removed and in 1953 the National Research Council made a study of the feasibility of the project.

Rock Project, British Columbia

They suggested diamond drilling to test the competence of the rock and the practicability of working underground. This work was done by Boyles Bros. Drilling Co. under the direction of Dr. W. E. Cockfield, of the Canadian Geological Survey. A favourable report on the underground approach was submitted.

On the receipt of this information, the National Research Council recommended the underground approach also and the Department of Public Works was charged with the responsibility of taking suitable action. For the preparation of detailed plans and specifications, and to supervise the work, the Department retained Dr. Victor Dolmage and E. E. Mason, consulting engineers of Vancouver. Associated with the project have been J. W. Stewart, a partner of the principals, and G. H. McDougall and H. Howay as resident engineers at the site.

The underground work was considered routine and the following is a list of the mine workings completed to give access to the critical elevations within each rock :

(a) A 7-ft. by 18-ft. three-compartment shaft with cage, skip and man-way compartments, was sunk on Maud Island, some 1,400 ft. from Ripple Rock, to a depth of 570 ft.;

(b) Some 2,400 ft. of 6-ft. by 7-ft. tunnel was driven from the shaft to a position under the North Rock and forking 400 ft. to the South Rock. A minimum of 100 ft. of ground was maintained under the deepest part of the channel;

(c) Two 7-ft. by 15-ft. access raises, or sub-shafts, were raised from tunnel level to within 40 ft. of each summit roughly for a total of 644 ft. of this work. They were divided into muck, manway and cage compartments;

(d) A station was cut in each sub-shaft at −120 ft. elevation below extreme low tide, from which a 5-ft. by 6-ft. sub-level was driven north and south along the axis of each rock for a total of 521 ft. of this work. These were the service levels from which the boxhole entries and coyote drifts that contained the explosive charges were driven. They also served as bases from which 140 diamond drill holes were extended to break through to delineate the outlines of each rock.

A Vulcan Iron Works hoist operated the cage in the main shaft on Maud Island. Canadian Ingersoll-Rand JR 38 jack drills with standard Atlas Copco integral steel were used for all drilling—sinking, drifting and raising. CIL 40 per cent and 75 per cent Forcite was used for blasting underground. Battery-operated Mancha Little Trammers hauled the mucking cars to the shaft.

Greatest rate of seepage encountered was 60 to 70 gals. per min. and this flow was handled by a large 30-10 Byron Jackson 200 h.p. vertical turbine pump with a capacity of 1,000 g.p.m.

Electric power for the project was supplied by the B.C. Power Commission which built a 13,000 V. extension line from the Vancouver Island shoreline to Maud Island via a 3,000-ft. overhead span. Standby power was provided by a Caterpillar D397 engine with a Caterpillar D4 providing emergency generating power. Air was supplied by a Canadian Ingersoll-Rand Imperial No. 10 compressor.

For diamond and percussion test hole drilling, which amounted to 33,200 ft., Boyles Bros. VEG diamond drills were used for 1⅛-in. holes and SFH 99 Gardner-Denver drills using Gardner-Denver steel for the 2½-in. holes.

POWDER LOADS AND FACTORS

	South		North		Total	
	Cu. yd.	Tons	Cu. yd.	Tons	Cu. yd.	Tons
Rock	58,890	144,000	91,300	224,000	150,190	368,000
Water	165,470	143,000	201,190	174,000	366,660	317,000
Rock equivalent of Water	58,200		71,000		129,200	
Total Rock Equivalent	117,090		162,300		279,390	
Nitramex 2H loaded	1,144,836 lb.		1,604,988 lb.		2,749,824 lb.	
Total Explosive, including Nitramex 2H, primers & Nitramon 5x.	1,147,604 lb.		1,608,720 lb.		2,756,324 lb.	

	South	North	Total
Powder load for water (lb.)	496,410	603,570	1,099,980
Powder factor water (lb./CY)	3	3	3
Powder load for rock (lb.)	651,194	1,005,150	1,656,344
Powder factor rock (lb./CY)	11.06	11.00	11.03
Powder factor, total rock, equivalent lb. per cu. yd.	9.80	9.91	9.86
Powder factor, rock (lb. per ton)	4.52	4.49	4.50
Powder factor, rock and water (lb. per ton)	4.00	4.03	4.04

The Contribution of Geology to the Mining Industry

By G. A. SCHNELLMANN,
Ph.D.(Lond.), A.R.S.M., M.I.M.M.

IT is difficult to define discovery, especially where fundamental principles are concerned. On an earlier occasion in these pages the writer defined the geology of ore deposits as "the sum of accumulated experience codified and explained in the light of our knowledge of the general sciences". The millenia of man's mining activity had accumulated an abundance of information, but no corresponding knowledge of its application, before the birth of the new profession, so that its early years were marked not so much by any great contributions to factual knowledge as by the systemization of existing knowledge and the formulation of principles which have provided the basis for the greater part of all subsequent scientific exploration for minerals.

Founders of Geological Techniques

It is proper, therefore, to give some attention to the fundamental achievements of the founders of this technology before reviewing some of the consequent discoveries made by their followers.

By common consent, chief among the early economic geologists was Waldemar Lindgren, an American citizen of Swedish birth, and his classic work *Mineral Deposits* is still the standard text on the subject. While recognizing that mineral deposits were formed in a diversity of ways, Lindgren postulated that metalliferous lodes, the most common type of orebody, found their origin in deposition from hot aqueous solutions emanating from granitic magmas. Clothed in the classical etymology which seems to be essential to scientific nomenclature, this is the hydrothermal theory. It has been assailed from time to time on the grounds of imperfections, some real and some imaginary, but none of the proposed alternatives can claim greater freedom of imperfection, and the conception of the vicinity of igneous rocks as a particularly favourable environment for the occurrence of orebodies has been both important and rewarding in modern mineral exploration. Interpreting the observed phenomena in terms of the physical chemistry of solutions, Lindgren also showed that the regular succession of minerals in the primary depth zones as they came to be called, was not a coincidence but a logical and inevitable consequence which could with confidence be invoked to predict the alteration in the nature of certain types of orebody in depth, for better or worse as the case might be.

This phenomenon is not to be confused with secondary enrichment, a scarcely less important and significant factor with which the name of another distinguished American geologist, S. F. Emmons, is associated. Put briefly, if Lindgren was concerned with how and why orebodies were formed, Emmons enquired what happened to them, and particularly to copper orebodies, after they had been formed. Again, like Lindgren, appealing to the established laws of physics and chemistry he formulated two principles, or perhaps more accurately a principle and its corollary. When orebodies are exposed to the influence of the atmosphere and of groundwater, he showed, the valuable mineral may be dissolved from the near-surface parts of lode and redeposited lower down. It may thus happen that all is not what it appears to be: a barren outcrop may conceal a valuable orebody, and on the other hand one should be circumspect about the mine which has improved with depth and needs only that extra finance to get into the real bonanza, for it may have been working in the zone of secondary enrichment and on deepening will get into the leaner, possibly uneconomic, zone of primary mineralization.

Kindred Sciences

So recently established, in terms of human history, are many of the principles of mining geology, that it is difficult to see the subject in correct perspective and invidious to name individuals as deserving the credit for the achievements. Frequently, of course, it would be grossly inaccurate to name any one person, since a large number of individuals have recorded similar observations independently and it is the sum total of all these which have established a general principle. Such, for instance, are the principles of structural and stratigraphic control, which can only be defined without recourse to technical jargon as the selective influence exerted on ore-deposition by certain geological environments in contrast to others.

A similar difficulty in allocating credit titles is experienced when one turns from achievement in the fundamentals of the science to consider the achievements of the economic geologist in the field of exploration. To such an increasing extent is economic geology becoming a borderland subject that some of its practitioners may assert jealously, and not without reason, that they have established a separate profession—geophysics, for example—which is entitled to the honour for a particular discovery.

Interpreting economic geology in as wide a sense as is

Many of the world's important orebodies have been discovered by pure accident, that is to say, not in the course of a deliberate scarch nor by people who had any special knowledge of such matters. One has only to recall the romantic stories of such discoveries as the Kimberley diamond field to illustrate this truth. On the other hand, a paper presented at the centenary meeting of the Société de l'Industrie Minerale in Paris in 1955, embodying proposals for a prospecting campaign in the Sahara based mainly on mathematical statistics, indicated that the present writer guessed better than he realized when he suggested in the "M.J." earlier that same year that the mathematician would make the next significant contribution to mineral exploration. Between these two extremes of chance and the slide rule lie the achievements of the economic geologist. It is a great pity that no one has ever been able to coin a name other than geologist for this hybrid, part mining engineer, part pure scientist, and altogether jack-of-all-trades, for a certain suspicion still seems to linger that no "-ologist" can possibly be capable of making a business appraisal. In the present context, and in particular so far as British-financed mining is concerned, this is to a large extent excusable by the comparatively recent growth of this new specialist.

consistent with fairness and accuracy, its record of achievement is impressive, and if in keeping with the immediate terms of reference attention is restricted to exploration, this is not to say that exploration is the economic geologist's sole realm of activity. Chronologically, exploration geology is, in fact, a newcomer in the service of a mining company, for the first geological department of a mining company was that organized in 1900 by H. V. Winchell for the Anaconda Mining Co. to direct the development of operating mines, and it was not until geology had demonstrated its value in current operations that this company extended its application to outside exploration.

What is a Discovery?

Again raising the problem of defining "discovery", does the location of a useful mineral in an environment which makes it uneconomic for the time being, or of a deposit of a mineral for which industry has yet to find a use, constitute a discovery? Not many of the people who have been impressed by the post-war development of the Quebec-Labrador iron ores, for instance, realize that they were originally located as long ago as the 1890's by A. P. Low of the Canadian Geological Survey who, in the course of basic geological mapping, reported the existence of iron formations similar to those already well-known in the Lake Superior area. It was not, however, until 1942 that geological exploration of the same area for non-ferrous metals brought to light the economic importance of the iron ore, proved reserves of which already exceed 400,000,000 tons. A similar story can be told of Blind River.

Turning from this to another great mineralized conglomerate field, the original discovery of the Rand was in the fortuitous class, but its later extensions are due entirely to geological reasoning. The location and development of the Far West Rand entailed tracing the auriferous conglomerate for a distance of more than 30 miles beyond its nearest outcrop beneath a cover of unconformable rocks 2,000 ft. or more thick, and across faults which in some cases caused horizontal displacements of more than two miles.

Effective Application in Mining

Geology combined with the new technology of geophysics to define the probable limits of the concealed goldfield, and the results were confirmed by diamond drilling before such mines as Blyvooruitzicht and West Driefontein were established. More recently the Orange Free State goldfield was predicted and located by a similar combination of geology and geophysics. In both of these achievements a large number of geologists and geophysicists was involved, but since it is no more than just to credit success to the individuals who would have borne the blame for failure, the name of O. Carleton Jones, consultant and later director of Consolidated Goldfields of South Africa, must be mentioned in connection with the West Rand, while the Orange Free State discovery is especially associated with the names of A. Frost on the geological side, and O. Weiss on the geophysical side.

It may be appropriate, in view of widespread misconceptions of the role of geophysics, to remark at this point that outside the realm of pure science, it is only an additional tool for the economic geologist. This is by no means intended to disparage its own sphere of specialized knowledge and techniques, but the fact is, as its leading practitioners admit, that geophysics of itself can achieve nothing. "Geophysicking" the whole earth by every known method, apart from being impractical, would only produce results which were meaningless until interpreted in terms of geological probabilities.

Possibly the most intensive piece of geological investigation until quite recently was that in the late 1920's which resulted in establishing the Rhodesian Copperbelt as a major mining district. It is perhaps scarcely accurate to describe this as a discovery, since the actual existence of copper had been known for many years and the ore had been mined and smelted by the natives. Despite this, the early prospecting of the area by Europeans failed to establish a mine, probably because the copper outcrops were so low grade as compared with those at that time being opened up in Katanga. Dr. Anton Gray, whose geological work was prominent in the later successful exploration (as was that of Dr. J. A. Bancroft) says that the outcrops were "for the most part inconspicuous and low grade". At Mufulira, for example, the outcrops "consisted of a thoroughly leached sandstone or quartzite outcrop with faint copper staining, mostly along bedding or joint planes", while the outcrop at Chambishi was "a sandy shale bed, very porous and it contained many small cavities lined with limonite and fine needles of malachite. It had the appearance of an extremely leached rock with every indication of having originally contained sulphides of iron and copper". It was these correct geological interpretations of such unpromising showings which led to the conception of economic mineralization and tonnages in depth. Systematic geological mapping defined areas for drilling, and the results are now common knowledge.

By way of contrast to these team efforts for the mining houses we may turn to the dramatic success of an individual geologist exploring on his own account, namely, the discovery by the late Dr. J. T. Williamson of the Mwadui diamond mine in Tanganyika.

A geologist of Canadian birth, he had been engaged in mineral exploration in Africa for many years when he became convinced that there were geological reasons for expecting diamonds to exist in Tanganyika. Allied with his geological reasoning were something of the old-timer's grim perseverance and faith in ultimate success, for it took him several years to locate what is popularly and perhaps correctly believed to be the world's richest diamond mine. It may well be asked by the layman, why, if geologists are the experts in mineral exploration, these lone-wolf successes are not more frequent. The answer is that the scope is, in fact, very restricted. Locating a mineral deposit under present-day conditions is in the great majority of cases a matter of major finance, and it is the combination of geological know-how, with courageous and far-seeing finance which spells success.

Success in the U.S.S.R.

When the Russians decided to look for diamonds, and under Soviet economy money is no object, they adopted a saturation technique. On so slender a clue as the discovery in 1948 of a single diamond weighing less than one-tenth of a carat they undertook a series of major geological investigations in the area and located a Kimberlite pipe in 1954. Two years later more than twenty pipes had been found. Even after allowing a discount for propaganda, it is evident that the scale of the operation has been justified by this filling of a serious gap in the U.S.S.R. mineral economy. Less glamorous, but hardly less important, was the discovery by their geologists a quarter of a century ago of an unusual igneous rock in the Kola Peninsula which is now the source of the U.S.S.R.'s phosphate production. As this source material is quite unlike the ordinary phosphate rock of commerce, only a geologist could have appreciated its potential significance and importance.

Machinery and Equipment

Mercury Arc Converters for Mine Winders

As long ago as 1932, the English Electric Co. demonstrated at Stafford the use of mercury arc converters for reversing drives. Again in 1944 the principle was once more demonstrated, but on a larger scale. The practical application of mercury arc converters for this type of duty, however, had not progressed in this country beyond a somewhat tentative application to machine-tool drives until last year, when almost simultaneously the steel mill and mining industries placed orders for this type of equipment. Currently, English Electric has contracts in hand for mercury arc converters for reversing drives. The company's mercury arc rectifiers were demonstrated to the Technical Press at Stafford on Friday last.

The processes of evolution and development have brought the multi-anode pumpless rectifier, the single anode rectifier (either of the ignitron or excitron type), and now the single crystal semiconductor rectifier, germanium or silicon.

At present the semi-conductor rectifier is restricted to the diode form and as such does not provide the control facilities required for reversing drives. It has, however, a significant part to play in connection with large industrial drives as a source of auxiliary power by reason of its very high efficiency and compactness.

Mercury arc rectifiers of the single anode type for lower power work and for special high-voltage application have been available for some time. Single-phase 50-cycle a.c. traction in this country has, however, stimulated the development of larger power units. The multi-anode air-cooled pumpless rectifier is a familiar enough sight in most heavy industries today. For fixed duty its use is commonplace.

For large motor drives the multi-anode rectifier using grid control for voltage variation has also proved itself in the steel mill industry and for a variety of other applications. English Electric has supplied or has on order over 100,000 kW. of grid-controlled rectifiers for variable speed motor drives.

For large industrial reversing drives, one of the main requirements is that the power-conversion equipment shall be capable of accepting and returning to the a.c. system any power generated by the motor in braking it to rest. For maximum economy, the processes of rectification and inversion are performed by the same device, and the word "rectifier" is thus no longer adequate to describe the dual function which the device has to fulfil. For this reason the phrase "mercury arc converter" has been adopted in the I.E.C. nomenclature.

The fundamental requirements of a large reversing drive are, of course, to run the motor up to normal speed from rest under gradually increasing voltage; to brake the machine to standstill, feeding the energy back to the a.c. system at a controlled rate. In certain applications the motor may be brought to rest sufficiently rapidly by the load itself without the need for regenerative braking; and to run the motor up to speed in the reverse direction by gradual increase of voltage.

When using mercury arc converters a choice of three methods is open, namely: cross-connected converters, armature reversal, or field reversal.

The principal applications in which the mercury arc converter can be employed for reversing duty are steel mills and mine winders. In the former application it has long been common practice to employ d.c. mill motors fed from motor generator sets, sometimes driven by synchronous motors, but more often by induction motors frequently using a flywheel to smooth out the heavy load peaks.

Mine winders commonly employ either a.c. motor or d.c. motor drive. The a.c. motor is low in capital cost, but at reduced speed it is less efficient than the d.c. motor.

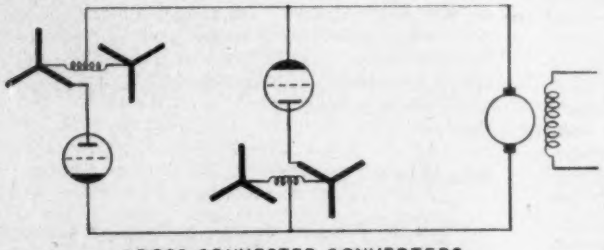
The synchronous motor-driven M.G. set provides the facility for power factor correction which the mercury arc converter lacks. On the other hand, peak loads suddenly imposed on the d.c. motor result in load overswing on the a.c. system due to the inertia of the synchronous motor. This may well amplify the peak load demand to a level where it results in undesirable voltage dips on the a.c. system.

In this respect the mercury arc converter occupies an intermediate position between the synchronous motor set and the flywheel or Ilgner set. The mercury arc converter simply reflects on the a.c. system an accurate reproduction of the load. Due consideration must therefore be given to the a.c. system when applying mercury arc converters to ensure that voltage dips coinciding with load peaks are within tolerable limits. Harmonic currents arising from mercury arc converters can usually be satisfactorily dealt with by phase multiplication, the need for which is determined by the size of the converter in relation to the size of the a.c. system feeding it.

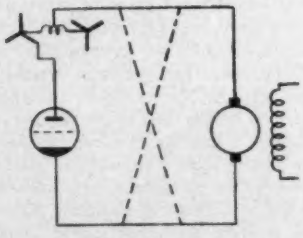
With an a.c. system of adequate capacity the mercury arc converter in general shows certain advantages over the M.G. set either for rolling mill or d.c. winder duty, namely: that it is lower in first cost, less expensive in foundation and installation costs, more efficient over the normal working range of load, has lower light load losses, demands lower maintenance cost, and the converter does not add to the fault level of the a.c. system.

Compared with an a.c. mine winder, the d.c. motor drive fed from a mercury arc converter is the more expensive in first cost. Its losses, however, are usually less, and, of course, it permits the utilization of characteristics of the d.c. motor for economic speed control comparable with those offered by the Ward-Leonard system.

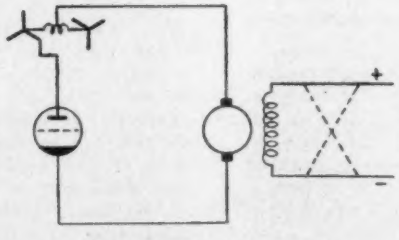
With underground winders, space considerations, and facilities for heat dissipation are of prime importance, and in these circumstances the mercury arc converter shows to advantage.



CROSS CONNECTED CONVERTERS.



ARMATURE REVERSAL.



FIELD REVERSAL.

At left is a diagrammatic illustration showing the three possible methods of using mercury arc converters

A BUNKER CONVEYOR

A means of providing temporary storage capacity in underground conveyor systems, preventing loss of output on power-loaded faces when delays occur in the haulage or winding cycle, has been

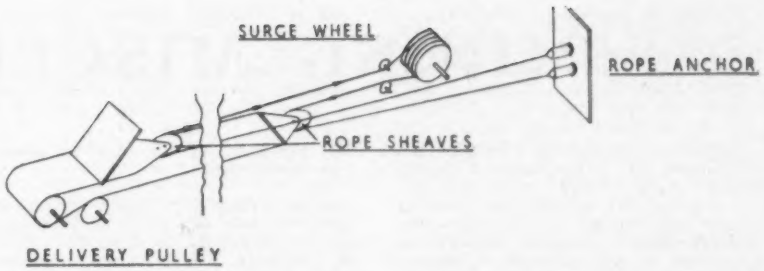
devised in No. 1 Area of the East Midlands Division, N.C.B. The new device is a bunker consisting essentially of a 42 in. wide special heavy-duty conveyor belt which travels backwards and forwards in a structure with deep sideplates designed to contain a load of 1 ton per yard run of the belting.

The capacity of the bunker is 100 tons, and its overall height and width are such that it can be accommodated in a normal conveyor roadway with a tub track alongside. It can be situated at a transfer point in the conveyor system where the roadway floor is fairly level. In the event of a stoppage affecting the trunk conveyors, coal can be diverted into the bunker and stored there until normal working conditions are resumed. The contents of the bunker can then be discharged on to the trunk conveyor.

The method of operation is that each end of the belt is secured to a steel plate which carries a rope sheave; a flexible wire rope passes round this sheave from an anchor at the tail end, is lapped three times round a surge wheel (also at the tail end), and then passed round the sheave at the other end of the belt. The remaining end of the rope is again anchored at the tail end. Springs are incorporated in the rope anchors to maintain tension in the rope and belt. The surge wheel is driven by a motor and reduction gearbox.

In place of the surge wheel drive, an alternative system, consisting of a travelling crosshead guided to move along the rope-line, can be installed. This crosshead incorporates a clip device which automatically engages or disengages with the rope according to the direction of its travel; motion is applied to the crosshead by a pair of hydraulic rams. Two similar units are employed, to provide motion in either direction, and suitable hydraulic control gear is incorporated.

The bunker is filled by feeding coal via a chute on the belt at the delivery end. The belt is run in reverse, and the speed regulated so that the coal fills the hopper. When emptying, the belt is run forward and the coal is discharged on to a stage loader, which in turn delivers on to the trunk conveyor.



LARGE BUCKETS FOR MICHIGAN TRACTORS

Michigan (Great Britain) Ltd. are now providing machines for bulk handling of lighter materials (such as coal, coke, chemicals) in the form of extra-large capacity buckets now available for the 175A and 75A tractors.

The model 175A, powered with a Leyland diesel engine developing 147 b.h.p., has a lifting capacity of 15,000 lb. and is now available with bucket capacity up to 5 cu. yds. nominal, carrying a heaped load of 6-7 cu. yds. The 75A model is powered by a Leyland or Perkins engine of 75-100 b.h.p. and has an 8,000 lb. lifting capacity, with bucket capacity from 1¼ up to 2½ cu. yds.

Michigan tractors incorporate front wheel drive, planetary wheel drive axles, power-shift transmission, and power steering providing fingertip control and ease of operation comparable with a private car. The Michigan system permits the bulk movement of materials at minimum operating cost and low initial investment.

NEW DUMPER BODY

The versatility of the Abelson diesel dumper has now been further widened by the addition of a large capacity medium-weight scow-end dumper body, which has been developed to meet the requirements of opencast and quarrying operations.

Abelson and Co. (Engineers) Ltd. have designed the new 8-10 cu. yd. capacity all-steel welded construction body primarily to receive loading by excavators at the opencast coalface and for hauling from site to colliery screening plants. The new design has obvious applications in other forms of opencast mining and in quarrying.

The dumper can be loaded from hoppers and screening plants with speed and efficiency. The 70 deg. angle of tip ensures complete discharge of the load, which, coupled with the adequate ground clearance of the scow-end, permits unrestricted tipping into ground-level feed hoppers and normal tips.

The body, 12 ft. 6 in. long with 4 ft. high sides and an overall width of 7 ft. 6 in., has been built within the requirements of the Construction and Use Regulations for Road Vehicles to ensure suitability for travelling on the public highway when carrying a maximum capacity payload.

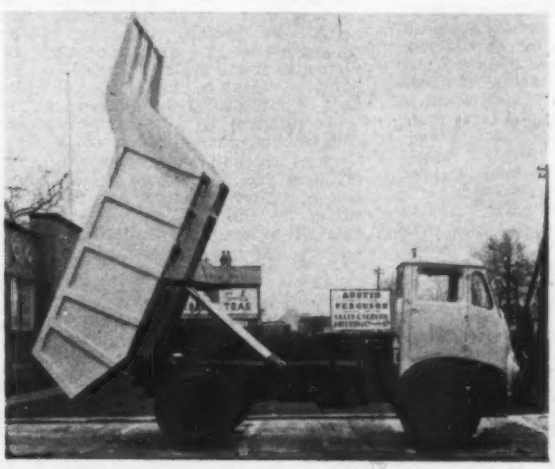
AUTOMATION IN THE MINERAL INDUSTRIES

In a recent report, J. McCaslin mentions various types of gauges used in automation within the mineral industries. Of particular interest is the magnetic flow meter, which operates on the principle that an electromotive force is generated when a conductor is moved through a magnetic field. As the force is directly proportional to the length of the conductor and with the velocity with which it passes through the field, any fluid flowing will generate such an electromotive force.

An instrument of this design has been placed on the market by Foxboro Co., United States, which can be used with liquids or pulp. The main advantages are that the measurement is independent of the effect of viscosity, density, turbulence or the presence of suspended matter.

DENSITY MEASURING DEVICE

In the United States, the Industrial Nucleonics Corp. have recently marketed the "Accuray" density system, which measures and/or controls fluid density by measuring the attenuation in the gamma radiations from an isotope source. Stock sizes are available for pipes from 3 in. to 8 in. dia.



Above : Arrangement of the haulage rope in the bunker conveyor designed in the East Midlands Division, N.C.B.

Centre : A Michigan tractor shovel 175A with 5 cu. yd. bucket, loading a coal wagon

At left : The scow-end dumper body of the Abelson diesel dumper

MINING MISCELLANY

The French Ministry of Commerce has announced that it has awarded Société Minière du Spath-Fluor a research permit covering 907 hectares and including copper, lead and zinc at Trebes in south-western France. Société Centrale de l'Uranium et des Minerais et Metaux Radioactifs has also received an exclusive uranium research permit for a 5,300 hectares area in Cantal Department.

★

Umniati Exploration Ltd. has been granted a prospecting order covering 130 sq. miles north-west of Gatooma for a period of three years provided at least £45,000 is spent on development.

★

On condition that it spends £12,500 on development work, Rhodesian Selection Trust Ltd. has been granted an exclusive licence covering 12¼ sq. miles in the Sinoia district of Southern Rhodesia to prospect for copper for two years.

★

A helicopter equipped for geological surveys is searching for copper in the Keweenaw Peninsula of upper Michigan. The Calumet Division of Calumet-Hecla Inc. has announced that it is expected that the survey will reveal the extent of the Division's deposits in the area.

★

Drilling operations to strike mineral oils will start in Cambay and Hoshiapur in about two weeks' time, while drilling at Sibsagar in Assam will start in June. A Russian team and their drilling equipment is expected soon in India.

★

West German imports of United States coal in the current year are expected to total about 12,900,000 tons, or 20 per cent less than in 1957. Imports of United States coal during the first quarter of this year amounted to 3,200,000 tons—approximately 1,000,000 tons less than in the same period of 1957.

★

On April 25, the Spanish Ministry of Commerce authorized the import of coal worth $5,384,280 for coke-making from the United States. The coal is to be paid for under United States economic aid for Spain. The importer is Central Siderurgica, the Spanish central selling organization for the iron and steel industries.

★

A $1,000,000 research laboratory is to be built by Bituminous Coal Research Inc., United States. Construction and operation will be financed by coal producers, customers, and Pittsburgh industrial groups.

★

Construction of the Southern Peru Copper Co. mill at Toquepala, Peru, is under way and all equipment is due for delivery in 1958. The plant will handle 30,000 tons per day. Another large copper plant, the Andes Copper Co., an El Salvador project, is also being designed.

★

The Quebec Copper Corp. has suspended operations at its mine near Eastmen, Quebec, because of low copper prices and a poorer grade of ore. Exploration and development at the mine will also be halted. The Corporation has been operating at the rate of 85 tons a day. The grade of mill feed was about 1 per cent copper.

★

A geophysical survey will commence within the next few weeks of 64 claims held by Tarbutt Mines in southern British Columbia. Under an option agreement, Rio Canadian Exploration will arrange the survey, share preliminary development expenses, and supply the bulk of any major development expenses warranted. The claims are located near a copper magnetite discovery in the vicinity of Merritt.

★

Mr. H. Gutermuth, chairman of the West German Miners Union, has asked Chancellor Adenauer to intervene personally to improve the business prospects of the coal-mining industry. In a telegram published on April 23, Mr. Gutermuth pointed out that pithead stocks of coal were growing daily by 50,000 tons of coal and 25,000 tons of coke. He added that 18 per cent of the daily coal output remained unsold and at the present rate stocks would reach 8,000,000 tons by August and September. He informed the Chancellor that a meeting of Union officials had advised a reduction of coal imports.

However, the Economics Ministry does not plan to restrict coal imports from the United States.

★

On April 1 the first load of ore from Chingola open-pit in Northern Rhodesia was transported by road to the concentrator. Started on April 27 last year, when the site was covered with bush, the Chingola open-pit is now 170 ft. deep. In less than a year 4,000,000 tons were removed. An average of nine vehicles, each with a capacity of 22 tons, is used per shift and average as a team 650 loads in 24 hours. As from April, it was assumed that the Chingola pit would be in a position to supply 40,000 tons of ore a month.

★

Trincomalee may become an oil base for South-east Asia, controlled by British interests. The Government of Ceylon is negotiating with a British-owned oil combine which desires to take over the installations at the former United Kingdom naval base on a 33-year lease. The combine wishes to use the installations to store large quantities of petrol and other fuel, and has informed the Government that it would like to use the Trincomalee oil installations as a base for supplying fuel to other countries. Before the deal is finalized, however, the Government is likely to examine the implications from the standpoint of foreign policy. Meanwhile, Russia is also keen to supply petrol to Ceylon, and the Soviet-Ceylon Trade Agreement provides for this.

★

According to a report in the Rand *Daily Mail*, South Africa may now be considered as a major world producer of sulphuric acid. The Union's leading commercial producer can now supply 900 tons a day, and the gold-mining industry an additional 1,550 tons. Six years ago the daily output was probably less than 30 tons. The acid plant at Virginia G.M., supplying the O.F.S. uranium plants with their sulphuric acid requirements, is the largest non-commercial producer in the country. There has been a spectacular increase in the commercial production of acid. Until recently the average annual sales of African Explosive and Chemical Industries was some 8,000 tons. In 1958, three customers are expected to buy 59,000 tons.

★

The Central Kedah Mining Co. of Penang has acquired development rights over a prospective mining area of 2,000 acres about 29 miles to the north of Penang. A preliminary survey of the area indicates the presence of iron ore, but whether or not the deposits are of commercial value has yet to be determined by further testing. For this purpose the company requires additional capital of $U.S.16,000. According to a notice in the American Press, the company offers to the investor a choice of a sub-lease over the entire area or to issue shares in the company after the economic value of the project has been proved.

★

The South African Iron and Steel Corporation's £56,000,000 expansion programme, which began about two years ago and is expected to be completed in 1959 or 1960, has now reached a fairly advanced stage of development, according to the latest issue of *Iscor News*. Most of the major plant has been ordered and much of it is already being built, while excavation and other preparations are being made for further construction. The programme will bring about an estimated increase in yearly production of 900,000 ingot tons. Iscor's rated capacity will then be 2.35 million ingot tons a year.

★

The Government of India has under examination the projected report of the Pipeline Engineering Co., United States, regarding the construction of a pipeline from oil wells in Assam to the site of the proposed new refinery near Gauhati in the first stage and later to Barauni, where it is proposed that the second refinery be erected. The report of the consultants estimates that the first stage of the project will cost approximately 250,000,000 Rs. and the second an additional 180,000,000 Rs. The Government believes that the costs of the project could be reduced. The Government and the Assam Oil Co. are partners in the proposed rupee company to finance and execute the project. According to the agreement recently reached between the Government and the Burmah Oil Co., the parent company of Assam Oil, an initial loan of £10,000,000 will be given to the rupee company to meet the foreign exchange content of the cost of the first stage of pipeline construction and other facilities. The Government is keen to put into operation the first public sector oil refinery by 1960. The refinery near Gauhati will be established with Roumanian financial and technical collaboration.

★

During the past ten years Czechoslovakia has increased considerably its output at mines and opencast workings, particularly in the extraction of soft coal. By the end of last year the output of soft coal, including lignite, was more than double that in 1948 and over two and a half times the output before the war. Figures recently issued show progress to

be as follows (in millions of tonnes): hard coal, 16.7 in 1937, 17.74 in 1948, and 24.18 in 1957; soft coal, 18.0 in 1937, 23.58 in 1948, and 51.01 (lignite, 2.23) in 1957. In terms of world *per capita* output ratings, Czechoslovakia is now placed eighth for hard coal and second for soft coal production among middle-sized countries.

★

Preliminary projects for the construction of a coal shipping port in the extreme south of Argentina have been approved by the Government-appointed Co-ordinating Committee for the development of Rio Turbia mines. The low-grade Rio Turbia coal is being under-exploited in the remote Province of Santa Cruz owing to transport difficulties. The Committee estimates that the installations required to permit loading of up to 1,000 tons of coal per hour and the docking of ships up to 10,000 tons will cost some 230,000,000 pesos (over £2,000,000). A tender is expected to be called soon. The mines are as yet only partly exploited, but the Export-Import Bank is currently considering a loan of $20,000,000 to provide the necessary equipment.

★

Argentina, resuming coal imports from Australia after a gap of fifty years, is to receive 50,000 tons of Australian coal during the first six months of this year. A total import of 21,000 tons should have been completed by the end of April, while a further 7,000 tons are expected in May and the remainder of the imports in June. The first shipments were quoted at around $21.20 per l.ton c. & f. Future shipments, however, are expected to cost somewhere between $19 and $19.50 per l.ton.

American coal is cheaper and could be placed in Buenos Aires below $17. Other supplies come from Poland, which cost $28 c. & f., and from Germany at $22 to $22.50 c. & f. Local imports of mineral coal last year totalled 1,198,553 tons.

★

The National Joint Committee on Materials Handling, a co-ordinating committee for professional and other bodies interested in materials handling, particularly from an educational standpoint, has compiled a list of films on materials handling which is now available upon receipt of a stamped-addressed envelope from the Secretariat, National Joint Committee on Materials Handling, 20-21 Took's Court, Cursitor Street, London, E.C.4. Some sixty titles are listed, showing the size and running time (where known), the source of film, and a brief synopsis of its purpose and audience suitability.

PERSONAL

Mr. C. Maxwell Norman has been appointed vice-chairman of Camp Bird Ltd.

★

Mr. A. E. Morton has been appointed home sales manager and publicity manager of Mathew Brothers, Wallington, Surrey.

★

Mr. W. B. Lane, managing director of Rapid Magnetic Machines Ltd., is flying to the Middle East. He will visit Greece, Turkey, Israel, and Cyprus.

★

Lord Dudley G. Gordon, chairman of the Hadfield Group of Companies, left for Canada on April 23 to begin a tour of North America in connection with the development of the companies' export business.

John D. Bradley, president of the Bunker Hill Co., San Francisco, California, was elected president of the Lead Industries Association and chairman of the Board of Directors at the Associations' annual meeting last week.

★

Mr. A. Peck is now manager of the Mobil Oil Company's Distribution Department, his former position as manager of the Consumer Fuels Department being filled by Mr. N. P. Huntley, previously assistant manager of that department.

★

Mr. F. C. Barford has been appointed manager of the Small Industrial Machines Department of the British Thompson-Houston Co. Ltd. His former post as manager of the Birmingham district is now filled by Mr. K. J. Clarke, A.M.I.E.E., who relinquished his position as manager of the Sheffield district. Mr. W. J. Wilson, A.M.I.E.E., formerly manager of the Leeds district, succeeds Mr. Clarke, and Mr. J. N. Griffiths is now the manager of the Leeds district.

★

Mr. E. J. G. Wayman, a director of Rocol Ltd. (lubricants manufacturers) is now touring Southern and Central Africa, where the company is already well known. The tour, which is to be quite extensive, will terminate on June 14.

★

Mr. R. H. Cooke has been appointed a director and general manager of Research and Control Instruments Ltd. Mr. Cooke, who is well known in instrument circles, played a prominent part in organizing the British exhibit at the first "Atoms for Peace" Conference in Geneva and serves on the committee of the Nucleonics Section of the Scientific Instrument Manufacturers Association (S.I.M.A.). Having been associated for many years with non-destructive testing in industry, he is also a founder member of the Society of Non-Destructive Testing (S.O.N.D.E.).

★

At the annual general meeting of the British Rubber and Plastics Belting Manufacturers Association, held on April 29, 1958, Mr. David D. Marshall, of the Greengate and Irwell Rubber Co. Ltd., was re-elected chairman for 1958-59.

COMPANY EVENTS

A battery supply and service depot has been opened in Leeds by Chloride Batteries Ltd.

★

Hibert H. P. Trist and Co. are now licensed to manufacture asbestos friction materials to the process and formulae of the Thermoid Co., United States.

★

An additional factory has been acquired at the Slough Trading Estate by Wolf Electric Tools Ltd.

★

Mr. Samuel Ayrton and Mr. Leon Lubett, A.R.S.M., A.M.I.M.M., who have been associated for many years in the operations of Ayrton Metals Ltd., are now to be directors of a new company, Ayrton and Partners Ltd., which has been formed to deal in non-ferrous metals, ores and minerals.

Mr. Eric Lipmann, director of Lipmann, Walton and Co. Ltd., is also joining the board of the new company, whose address will be Imperial House, Dominion Street, London, E.C.2 (telephone Monarch 7541-2; cable address, Partonayr London).

Commencing operations on May 1, 1958, a new instrument company, Research and Control Instruments Ltd., Instrument House, 207 King's Cross Road, London, W.C.1 (telephone Terminus 8444), will become the sole distributors in the United Kingdom for the electronic instruments and scientific equipment hitherto marketed by Philips Electrical Ltd. (Research and Control Instruments Division).

CONFERENCES AND EXHIBITIONS

The First European Fluid Power Conference is to be held at St. Ermin's Hotel, Westminster, S.W.1, on May 14 and 15.

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A meeting of the North-Western Fuel Luncheon Club is to be held at the Engineer's Club, Manchester, on May 7, when a talk will be given on "Energy Production and Distribution in Argentina".

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The summer meeting of the Institution of Mining Engineers will be held from July 2-4 in Birmingham; the Manchester Geological and Mining Society hold their summer meeting on May 29; a paper entitled "An electronic indicating system for mines" is to be presented by the Midland Counties Institution of Engineers at the Mines Rescue Station, Ashby-de-la-Zouch, on May 14; the Mining Institute of Scotland are showing a film "Golden Future" by permission of the Transvaal and Orange Free State Chamber of Mines on May 31 at the Grosvenor Restaurant, Glasgow; a paper entitled "Reconstruction of Freidrich-Heinrich colliery to an increase of output of 3,000,000 tons annually" will be presented by the North of England Institute of Mining and Mechanical Engineers on June 6 at the Institute, Neville Hall, Newcastle upon Tyne; the South Wales Institute of Engineers are presenting the paper, "The bunkerage of coal underground", at the Institute, Park Place, Cardiff, on May 15.

CONTRACTS AND TENDERS

The International Co-operation Administration has announced the following future procurements:

Taiwan (Formosa)

Conical ball mill, 6 ft. dia. by 36 in. cylinder length, to grind dry calcined petroleum coke from — 6 mm. feed size to 20 per cent residue on 200 mesh at the rate of 1,000 kgs. per hr. Closing date, May 26, 1958. Issuing authority and address for bids, Central Trust of China, Purchasing Department, 68 Yen Ping Nan Road, Taipei, Taiwan (Formosa). Ref. ESB/10355/58/ICA. Telephone inquiries to Chancery 4411, extension 354.

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The director of purchasing of the Stardrill-Keystone Co., Beaver Falls, Pennsylvania, has informed the British Embassy at Washington that he is seeking a direct United Kingdom source of supply of compressors to be made in conjunction with the manufacture of his company's well-drilling machinery. The Stardrill-Keystone Co. wish to obtain piston-type compressors with a capacity from 500-700 cu. ft. per min. free air at 100 lb. p.s.i. Manufacturers interested in this inquiry should write by air mail direct to the Director of Purchasing of the U.S. company. It is important that quotations should show both f.o.b. and c.i.f. prices in U.S. currency. Ref. ESB/10352/58. Telephone inquiries to Chancery 4411, extension 776 or 866.

Metals and Minerals

Tariffs, Quotas or Subsidies ?

The Tariff Commission has unanimously recommended to President Eisenhower that U.S. tariffs on lead and zinc imports be increased.

As we reported last week, however, the Commission divided along party political lines on the establishment of import quotas—the three Republican members voting to impose quotas on a country-by-country basis and the three Democrats rejecting them. The Commission also disagreed on how the increased rates should apply. The Republicans recommended higher duties than the Democrats.

Present U.S. tariffs on manufactured lead are: lead content; lead-bearing ores, flue dust and matters of all kinds, ¼ c. per lb; lead or base bullion in pigs and bars dross, reclaimed, scrap, antimonial and antimonial scrap, type metal and all alloys or combinations of lead, 1$\frac{1}{16}$ c. per lb.

Present duties on zinc (zinc content) are: zinc-bearing ores of all kinds except pyrites containing not more than 3 per cent zinc, 3/5 c. per lb.; zinc in blocks, pigs or slabs, 7/10 c. per lb.; old and worn-out zinc fit only to be remanufactured, zinc dross and skimmings, 2½ c. per lb.

The three Republican members of the Commission advocated that tariffs on lead-bearing ores be raised to 1 4/5 c. per lb., and lead in bullion, pigs and bars to 2 11/20 c. per lb. They recommended that duties on zinc-bearing ores be increased to 1 4/5 c. per lb., on zinc in pigs and bars to 2 1/10 c. per lb., and on old zinc to 2½ c. per lb.

The three Democrats recommended that tariffs on lead-bearing ores be increased to 1½ c. per lb., and lead in bullion bars and pigs to 2½ c. per lb. They suggested that duties on zinc-bearing ores be increased to 1½ c. per lb., on zinc in pigs and bars to 1½ c. per lb., and on old zinc to 1½ c. per lb.

The Republicans, in their proposals for import quotas, recommended that total imports of unmanufactured lead be limited to an annual quota of 221,700 s.tons, lead content, while imports of unmanufactured zinc be restricted to a yearly quota of 325,600 s.tons, zinc content. They recommended that a total of 82,700 tons be allowed to enter the U.S. in lead-bearing ores, and that this be divided among the offshore suppliers as follows: Peru, 20,200 s.tons; South Africa, 18,600; Canada, 16,800; Australia, 12,600; Bolivia, 6,300; and from all other countries combined, 8,200. They would permit entry of 139,000 tons as pigs, bars and in other forms, and this would be divided as follows: Mexico, 46,100 s.tons; Australia, 29,600; Canada, 19,900; Yugoslavia, 19,700; Peru, 16,100; and from all other countries combined, 7,600.

The Republicans recommended that imports of zinc-bearing ores be limited to an annual quota of 237,400 tons, to be apportioned as follows: Mexico, 88,100 s.tons; Canada, 83,100; Peru, 43,900; and from all other countries combined, 22,300. They suggested that imports of zinc in blocks, pigs or slabs and other forms be limited to a yearly total of 88,200 tons, and that this be as follows: Canada, 47,300; Belgium and Luxembourg, 9,400; Mexico, 7,900; Belgian Congo, 6,800; Peru, 4,700; Italy, 4,500; and from all other countries combined, 7,600. They recommended that not more than one-quarter of any annual quota for any country be permitted to enter for consumption in any one calendar quarter. The quotas would not apply to imports for Federal Government stockpiles and imports of duty-free lead and zinc ores that were smelted and refined in the U.S. for the production of metals or fabricated articles incorporating them for export.

The three Democrats said their relief proposal would mean a 100 per cent increase over current rates for lead and 150 per cent for zinc, whereas the Republican suggestions would mean a 140 per cent increase in lead duties and 200 per cent in zinc.

President Eisenhower under law has 60 days from April 24 to accept or reject the suggestions or to ask the Commission to make further study of the imports.

WIDESPREAD OPPOSITION

Meanwhile, as was to be expected, the Commission's recommendations are being widely assailed. The U.S. Committee for a National Trade Policy, which is an organization devoted to promoting freer U.S. trade with foreign countries, has released a 35-page study entitled "The Case Against Increased Import Barriers on Lead and Zinc". The study says that "increasing the barriers on lead and zinc will hurt economically and greatly antagonise four hemispheric allies, Canada, Mexico, Peru, and Bolivia—as well as Australia on the other side of the globe". Increased production would not help U.S. marginal mines, declared this association, and added that conditions had changed since a year ago, particularly as regards the emergence of the Soviet Union as an economic power.

In Canada, Mr. Kenneth Kiernan, Mines Minister of British Columbia, said he would ask the Federal Government to protest strongly against United States recommendations for increased import tariffs on lead and zinc.

"We are not happy with our position as a tap which is turned on or off to meet U.S. requirements", the Minister said. "The surplus situation in lead and zinc in the U.S. is a temporary situation. They have a great dependence on imports. It would seem basically unsound to apply a tariff which would jack up costs of the material".

If quotas are imposed on lead and zinc imports, the American Smelting and Refining Co. will probably have to close two domestic lead smelters and one lead refinery, resulting in lay-offs of hundreds of employees, according to a company announcement. The company said its share of a reduced supply would permit economical operation of only two of its four western lead smelters, all of which depend to a large extent on raw materials from overseas. Zinc smelting would also be drastically affected.

The possibility of an alternative—and much less contentious—solution is foreshadowed by the announcement that the Administration is soon to submit a domestic mineral stabilization plan to Congress. Our L.M.E. correspondent discusses this scheme on the next page.

PRICE CUT WILL STIMULATE ALUMINIUM USAGE

There has been some criticism by U.S. aluminium producers of the price reductions recently made by Aluminium Ltd. The reasons for the cuts were explained to the annual meeting of shareholders by the president, Mr. Nathanael V. Davis.

Mr. Davis pointed out that the aluminium industry was not alone in experiencing a slackening in demand, but it differed from many other industries in that it was simultaneously expanding at a relatively rapid rate. World production increased from 1,400,000 s.tons in 1948 to 3,700,000 s.tons in 1957. Looking ahead, during the next few years additional primary capacity of 1,500,000 tons had been planned by "sundry producers" throughout the world.

These factors, it was stated, were bound to suggest a careful consideration of prices. After much thought the company concluded about a month ago that, under the conditions then prevailing, a 2 c. reduction in its price of primary aluminium would provide the most effective stimulant to the development of consumption. It was felt that, with stocks in the hands of fabricators at low levels and with indications that consumption was stabilizing, price action taken at such a time would prove to be a constructive force.

"Aluminium with all its excellent properties", said Mr. Davis, "still has to win a wider acceptance in competition with other materials, chiefly steel, copper, wood, and plastics. Many individual uses which hold out the promise of large outlets are highly competitive on a price basis. We believe that the price reduction, coupled with energetic action on other fronts, will provide a stimulant in new areas where advantages must be offered. Small variations in price may radically affect the acceptability of aluminium in such highly competitive uses as canning, roofing, pipelines, and many parts of the cable business".

A major United States fabricator, Mr. Victor Muscat, president of Victor Metal Products Corporation, predicts that an immediate result of the recent price cut will be to further aluminium's efforts in the rigid container field. Hitherto, aluminium's higher price in relation to competitive material has been an obstructing factor in this enormous market. Mr. Muscat's company, which will shortly start production of aerosols and other aluminium containers, believes that these can now be produced by the impact extrusion process at prices that are the same, and in certain instances possibly

lower, than those made of traditional tinplate steel.

URANIUM FOR SALE

The Union Carbide International Co. has announced the availability to licensed buyers outside the U.S. and Canada of uranium concentrates in commercial quantities. It has not been indicated whether the necessary permission from the U.S. Atomic Energy Commission and the U.S. Government has yet been obtained.

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The Free World's uranium resources were discussed by Mr. Robert Winters, president of the Rio Tinto Mining Co. of Canada, at the company's annual meeting in Toronto. Mr. Winters said that, in the light of anticipated long-term requirements, currently known economic reserves might not be adequate for demand. If total Free World reserves were compared roughly with total Free World mill capacities, existing and planned, these reserves would be exhausted in 25 years. Canada's reserves, which were probably the largest in terms of contained uranium oxide, would almost certainly outlast the century. Those of the U.S. could be exhausted in a decade.

The properties in the Tinto group will be responsible for about 60 per cent of the output of the Blind River area and about half the production scheduled for the whole of Canada.

TITANIUM PRICE CUT

The Titanium Metals Corporation of America has reduced the basis prices of its titanium mill products by an average of 10 per cent. Some items, including high-strength steel alloy plate and billet, were cut by 20-30 per cent. These items are in demand for jet engines, airframes and missiles. The company attributes the reductions to advances in mill processing techniques and to succesful operation of its new finishing plant at Toronto, Ohio. The latest cuts bring price reductions on titanium mill products since 1954 to about 45 per cent.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

Markets during the week have shown fairly wide range in quotations but the undertone remains steady and the business passing has been mostly of a routine nature.

Both the custom smelter price for copper and also the Belgian price has been raised during the week and Kennecott have announced a cutback in production in another of their divisions. Stocks in official warehouses showed little alteration and the price of tin in the East on Thursday morning was equivalent to £744½ per ton c.i.f. Europe.

There have, however, been three main topics of conversation during the week which have each had effects on the market and it is thought necessary to devote this week's space to discussing the statements by Senor Lagarrigue on the subject of the London Metal Exchange: the possible outcome of the present International Tin Council meeting: and the confused picture in America due to the publication of a new plan to help the mining industry in that country.

A CONSEQUENCE OF LONG-TERM CONTRACTS

Senor Lagarrigue, who is coming to London for a meeting which has been arranged for early next month between a number of producers—and, it is believed, some consumer representatives—said in New York, among other things, that he intended to raise the question of modifying the London Metal Exchange copper contract, as he said that in its present form it was of no use to producers. This remark shows a complete lack of understanding of the existing standard contract which contains a number of options, both as to the type of copper which may be delivered and the place in the U.K. at which delivery can be made in order to help producers who wish to make physical delivery against hedging sales. If it is assumed that producers might wish to use the market to support the price, then it does not appear that the type of copper of which they have to take delivery matters very much, as, presumably, any such support would only occur at times when the producers had a surplus of their own copper and any market purchases could eventually be liquidated by re-selling and re-delivery on the Exchange. Senor Lagarrigue also complained that as the Chilean's sales contracts were based on the L.M.E. quotations they were not obtaining the benefit of the present premiums existing in Europe for electrolytic copper.

It does not take very deep thought to realize that the premiums are due to a scarcity and that this scarcity is brought about by the producers having nothing to sell for short-time delivery, and if the Chileans had not sold the whole of their output on long-term contracts they might have had some nearby copper to offer, although if this had amounted to any large tonnage the premiums would not have developed. It is hoped that during his visit to London, Senor Lagarrigue will find time to discuss with Metal Exchange officials the present situation.

I.T.C. MEETS AT VITAL MOMENT

The meeting of the International Tin Council is probably the most critical that that body has yet had, as it appears that the existing export quotas are now beginning to have an effect on the supply situation and that a few weeks more will be sufficient for the rise in price to take place, which has been expected now for so many months. The actual demand for the metal, however, still leaves much to be desired and if any steps are taken at this Council Meeting to alter the export quotas for the third quarter, sentiment will probably be sufficient to keep the price at its present level. It is generally realized that although producing countries are prepared to back the scheme to the hilt it is becoming increasingly difficult for them on domestic political grounds to maintain the present position which is causing large-scale unemployment amongst tin miners. It is to be hoped that the situation will develop in such a way that the retention of the present drastic export quota for another period will enable the necessary relief to be given later in the year.

SUBSIDIES FOR LEAD/ZINC?

Finally, we come to the question of a new suggestion which is being made in the United States to help the domestic mining industry. This is that Congress be asked to make payments to producers of five minerals, amongst them copper, lead and zinc, to bridge the gap between the actual selling price and a so-called "stabilization" price which it is understood is 27½ c. per lb. for copper; 14¼ c. per lb. for lead, and 12½ c. for zinc. Maximum tonnages, however, have been stipulated on which separate payments would be made and these are 1,000,000 tons of copper, 350,000 tons of lead and 550,000 tons of zinc. Assessment of what this might mean is made more difficult by the uncertainty of the duty question in respect of copper and the very divided recommendation made by the Tariff Commission on lead and zinc, but first impressions in London were that this was a bullish move and prices rose sharply on Tuesday morning, although second thoughts soon caused this gain to be lost.

Such a plan was intended to be limited to five years, but the prevailing opinion is that any such measure would contribute nothing to the efforts being made to raise the price levels, as there is now every incentive for production to be maintained at its present rate, which means that there will be a greater tonnage of metal which will have to be sold, and the stockpile will no longer be there to help. Whether this metal is sold outside America, or whether protective tariff walls are raised to enable it to be sold inside the country, additional metal will come on to the non-U.S. market and experience has shown that such surpluses will find their way to the London Metal Exchange where they will only be absorbed at lower levels. Much doubt is expressed as to whether Congress in its present mood will be prepared to pass such a measure without long and bitter debate, which would probably not be concluded by the end of the present Session, so that at least a year would probably elapse before anything is done on these lines, if the whole idea is not discarded at any early date.

Closing prices and turnovers are:

	Apl. 24		May 1	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash	£173¼	£173½	£177½	£178
Three months ..	£175¼	£175½	£179¼	£179½
Settlement ..	£173½		£178	
Week's turnover	8,225 tons		7,475 tons	
LEAD				
Current ½ month	£73	£73¼	£72½	£73¼
Three months ..	£73¼	£73½	£73¼	£73½
Week's turnover	2,375 tons		4,125 tons	
TIN				
Cash	£730	£730½	£730	£730½
Three months ..	£730	£730½	£733	£734
Settlement ..	£730½		£730½	
Week's turnover	705 tons		1,015 tons	
ZINC				
Current ½ month	£62½	£62½	£62½	£63
Three months ..	£62½	£62½	£63	£63½
Week's turnover	3,200 tons		4,575 tons	

London Metal and Ore Prices appear on inside back cover.

Mining Finance

More Money For The O.F.S.

It is probable that shareholders in President Brand and President Steyn, two adjoining producers of gold and uranium in the Orange Free State, will view with mixed feelings the surprise news that there has been a revision of future shaft-sinking plans in order to speed up the rate of production expansion and that as a result there is to be a call on their pockets for fresh funds. The latter event rarely seems to be viewed with much enthusiasm in the share market these days. The last major issue in this particular field, that of Free State Geduld, was under-subscribed to the extent of 26 per cent. The £3,500,000 now required by the two Presidents will come on top of the £4,850,000 which Free State Saaiplaas is proposing to raise shortly, as detailed here on April 18.

Apart from the money angle, shareholders will no doubt look with optimism on the respective boards' decisions to step up the development programmes at Brand and Steyn. It is obviously all to the good in view of the eventual heavy tax liabilities that will be incurred that milling operations should be expanded as quickly as possible. In the following table the plans for the two companies are set out side by side, including the issue details, the new capital structures, the estimated cost of the new shaft systems and plant expansions, and the time-tables thereof.

	President Brand	*President Steyn*
Issue (5s. shares)	1,040,000	1,000,000
Price	45/-	24/-
Ratio	8 for 100	8 for 100
Capital:		
Authorized ...	£3,510,000	£3,500,000
Issued ...	£3,510,000	£3,500,000
Cap. expend. ...	£4,100,000	£4,750,000
New funds raised	£2,340,000	£1,200,000
New shafts:		
Depth ...	5,200 ft.	6,200 ft.
Start ...	Oct. 1958	1st qtr., 1959
Finish ...	1961	1962
Mill Rate:		
Mar., 1958	79,500 tons	94,000 tons
Proposed	140,000 tons	140,000 tons

The companies' new shaft systems replace the joint plans previously announced. Brand's will consist of twin shafts, to be known as No. 3, in the rich northern part of the property, about 5,000 ft. to the north-east of the existing No. 1 shaft. The circular hoisting and ventilation shafts will be 24 ft. and 18 ft. in diameter respectively. Steyn's will also be known as No. 3, but it will be in the south of the property, approximately 8,000 ft. south of the No. 2 shaft. The respective diameters of the hoisting and ventilation shafts will be 26 ft. and 20 ft.

In both mines, workings will be pushed out from the existing shafts towards the sites of the new shafts, so that there will be ore available for stoping as soon as the latter are commissioned. Another part of the new arrangements is an adjustment of the common boundary between the two properties that should be of mutual benefit. It will conform to the natural geological division, based on the position of the Arrarat fault system and its final alignment will be determined when future mining operations define the exact location of this fault.

President Brand's issue is contingent on the necessary increase in the authorized capital of £260,000 to £3,510,000 being passed at an extraordinary meeting on June 3. Steyn, however, has not got to seek such powers. Although the issue to shareholders would straightforwardly involve 40,000 shares above the present authorized capital, Anglo American Corporation, the parent finance house, has agreed to cut its own application by this amount should it prove necessary. Anglo American is underwriting both issues for a cash consideration of 2½ per cent on the issue prices. In both instances the U.K. portions of the offers are subject to Treasury permission, application for which has already been made.

THE TAX FACTOR

The reference in the official circulars to the fact that the increase in working profits that will follow attainment of higher production rates will be "of particular benefit in mitigating the impact of tax and lease payments when they fall due" makes it worth while recalling the tax offsets as at September 30 last, revealed in the annual reports. For Brand, the estimated figure was £3,411,000. With profits now running at close on £1,500,000 a quarter, this would, without allowing for the further capital expenditure that will add to the offset figure, bring Brand into the tax class during the current financial year to September 30 next.

For Steyn, the tax loss figure at September 30 was very much higher at £11,780,000, contrasted with an annual profit rate of £2,900,000. It thus looks in this case as though the new shaft system may be in commission by the time Steyn runs into any major tax liability.

At the current prices of 47s. for Brand and 25s. 9d. for Steyn, the value of the rights involved in the coming new share issues is infinitesimal. Shareholders will no doubt, however, consider the outlook for the two mines as being sufficiently favourable to make it worth while to add to their existing holdings. In both instances, the new shares rank for the final dividend for 1957-58 due to be declared next September. Last September, Brand's distribution was 2s. 6d., followed by a similar payment this March. Steyn declared a final dividend for 1956-7 of 1s. 6d., and an interim in March of 1s. 3d.

WHY INCO EXPANDS

As was outlined here last week the International Nickel Company of Canada is making a second 10 per cent cut in its nickel output owing to the marked falling off in the demand for this metal that has taken place during the past twelve months. At the same time it is pressing on with the opening up of its large new Manitoba project. This may seem strange. It was explained by Dr. John F. Thompson at the annual meeting on Wednesday. He pointed out that it was essential for a concern like Inco to search for new sources of supply. The known deposits of a type suitable for Inco's processes are comparatively rare, or of an insufficient grade, or too small in size, to add an appreciable supply over a period of years.

It took a 10-years search and the expenditure of $10,000,000 in Manitoba alone before a commercial deposit was finally located. In these circumstances it is, of course, a matter of luck whether bringing such a project to fruition coincides with a booming nickel market or otherwise. The 75,000,000 lb. of nickel from the Thompson mine in Manitoba will increase Inco's overall capacity to 385,000,000 lb. per annum by 1961 compared with 290,000,000 lb. produced last year.

TIN: THE IMPACT OF RESTRICTION

Figures released by the Malayan Department of Mines covering the quarter ended March 31, 1958, show the effect of the first quota period, which ended on the same date.

WORKING MINES AT END OF MONTH

	Dredges	*Gravel Pumps*	*Others*	*Total*
1957:				
Dec. ...	76	597	65	738
1958:				
Jan. ...	76	573	67	716
Feb. ...	71	462	58	591
Mar. ...	69	459	60	588

During the three months period the direct labour employed in tin mines dropped from 36,585 to 30,965.

PRODUCTION AND EXPORTS OF TIN-IN-CONCENTRATES

	Production l.tons	*Exports l.tons*
1958:		
January	4,546	4,361
February	3,559	3,087
March	3,649	1,564
	11,754	9,012
Add exported December 15 to 31, 1957 ...		1,692
Total exported during First Quota Period		10,704
Permissible amount allotted to Malaya		10,125
Over-exported: to be adjusted in Second Quota Period		579

During January the No. 4 Dredge of Kamunting Tin Dredging Ltd. was closed down, but the No. 2 Dredge of Berjuntai

(*Continued on page* 517)

MARKET HIGHLIGHTS

Any revival of U.S. interest in gold these days naturally enough stimulates higher gold price talk here. So it was understandable that Kaffir dealers on Monday were hoping that Homestake's rise on Wall Street would cause favourable reactions in London.

To some degree their hopes were fulfilled; a certain amount of support came for dividend paying mines such as Venterspost, East Rand Proprietary and East Geduld. Modder B. jumbed 6d. to 3s. on talk of the company's liquidation.

After this, however, interest seemed to wane. Western Reefs (25s. 7½d.) lost ground on their growing tax bill and Harmony (33s. 9d.) eased on the labour dispute at the mine.

There was a rather firmer tendency later in the week, but business remained fairly small. Even so it was noticeable that when the Presidents Brand and Steyn were marked down on their new issue proposals, buyers soon appeared and prices quickly recovered.

More surprising was the sudden revival of platinum shares, an inexplicable demand finding the market none too well supplied with stock. Lydenburg (6s. 6d.), Potgietersrust (4s. 7½d.) and Unions (6s.), all jumped 6d. or so, and on their Rustenburg interests Johnnies rose 1s. to 45s.

Elsewhere, an intriguing situation seemed to be building up in Henderson's. The shares which were 7s. 10½d. earlier last week, yield a comfortable 7½ per cent from colliery interests and have an asset value of over 11s. Even more appealing from a "take over" point of view, however, are Henderson's extensive mineral rights and land holdings in Swaziland. Against this background the shares jumped into prominence a fortnight or so ago. Interest seemed to fade until last week when they suddenly improved to 8s. 10½d, the movement being accompanied by talk that shares in the company's Tweefontein Colliery were to be marketed in London, perhaps to leave the way clear for a deal over the Swaziland holdings.

In the Base-metal section, Lead-zincs took their worst knock for many a day on the particularly depressing news announced by Broken Hill South and North Broken Hill. During the days that followed the news, Broken Hill South tumbled 10s. to 48s. 9d. and North Broken Hill fell 6s. 3d. to 67s. 6d. Consolidated Zinc lost 3s. 6d. to 45s. 3d.

Tins were often inclined to go better on the more confident outlook for the Tin Agreement. Exceptionally, South Crofty were marked down to a rather nominal 4s. 3d. on the trading loss and dividend omission. Happier news was forthcoming for shareholders in Central Provinces Manganese in the shape of an increase in both dividend and profits; the shares soon rose 3s. to 30s. 3d.

Copper shares fluctuated with Wall Street and the metal price in very thin trading conditions, but it was noticeable that the market was more inclined to follow good news than the more usual sort seen in this market recently. The long-awaited Messina interim duly made its appearance. Nobody was quite sure what to make of the 2s. 6d. payment. Finally, the view was taken that the shares had fallen enough and they improved to 80s.

THE BRITISH PETROLEUM COMPANY

SATISFACTORY RESULTS FOR 1957 DESPITE DIFFICULT TRADING CONDITIONS

The 49th annual general meeting of The British Petroleum Company Limited will be held on May 22 in London.

The following is an extract from the Statement by the Chairman, **Sir Neville Gass, K.B.E., M.C.**, which has been circulated to Stockholders.

Our Group Income Statement for the first six months for 1957, published in September last, showed a net income one-third less than in the same period of 1956, because of the lower sales and higher expenses caused by the Suez crisis. For the whole year of 1957, as forecast last December in the prospectus for our Convertible Debenture issue, Group sales tonnage and net income approximate closely to those for 1956, a satisfactory result considering that the adverse effects of the crisis had to be sustained for a longer period in 1957 than in 1956.

Difficult trading conditions already referred to make it more than usually hazardous to attempt at this early stage to forecast how results from our 1958 operations may compare with those for last year. Having had no increase in sales tonnage in 1957, we are hoping for higher figures in 1958; for the twelve months ended March 31, 1958, our sales amounted to over 57 million tons compared with 53 million tons in 1957.

After reviewing the financial results for the year, the statement continued: Your Directors have recommended a final dividend on the Ordinary Stock of 2s. per £1 stock unit free of income tax, making a total for the year of 3s. per £1 stock unit free of income tax. They consider that no increase in dividend should now be paid in view of the disturbed conditions which have developed in the world oil markets.

The Revenue Reserves now total £151,549,632 having been increased this year by a total of £33,358,886.

Your Directors recognize that Reserves have reached a level which calls for measures of capitalization of reserves in part, and they contemplate recommending such action later in the year unless unforeseen conditions arise.

Production and Refining

In 1957 our main sources of crude oil were again Kuwait, Iran, Iraq, and Qatar, from which we obtained some 48,700,000 tons. By reason of the Suez crisis this was about 1,000,000 tons less in 1956, but still some 3,000,000 tons more than in 1955, the last normal year.

During the early part of 1957 BP Group refinery throughputs and also our processing arrangements at other refineries were seriously affected by the dislocation in crude oil supplies caused by the closing of the Suez Canal and interruptions to the Iraq Petroleum Company's pipeline deliveries to the Mediterranean. In the circumstances it is satisfactory to record that our total throughput for the year of 32,100,000 tons was only 400,000 tons less than in 1956.

Major expansion in the Group's activities for the manufacture of chemicals from petroleum in the United Kingdom, France, and Germany took place during the year. In the United Kingdom, the three companies in which BP participates have operated very satisfactorily with all manufacturing units maintaining a high output of intermediate petroleum chemicals. When plants now being built are completed, the production of chemicals at Grangemouth will approach 200,000 tons per annum.

Distribution and Sales

The BP Group's sales of crude oil and refined products in 1957 totalled, as in 1956, approximately 53 million tons; a reduction in the first half of the year, due to the effects of Suez, was made good during the second half of the year.

In the United Kingdom consumption of petroleum products, severely curtailed in the early months of the year by the motor fuel rationing schemes and other restrictions in force from December, 1956, to May, 1957, showed a decrease of 2½ per cent in 1957 compared with an increase of 8½ per cent in 1956. Our associated marketing company, Shell-Mex and B.P. Limited, maintained their leading position in the market, their sales showing only a small decrease in line with the decrease in consumption.

Our trade on the continent of Europe was also affected by supply difficulties and restrictions on consumption, and for the year our deliveries fell short of the 1956 level by some 7 per cent. East of Suez, our markets were not subject to the same restrictions.

The BP International Oil Bunkering Service was also considerably affected in the early months of the year by the Suez emergency and in the latter part of the year by a slackening in world shipping activity. Despite this, our bunker sales reached a level equivalent to the average of the preceding two record years.

BP Aviation Service has further extended its field of operations and our sales of aviation fuels have continued to increase. The demand for BP Energol branded lubricants continues to increase.

As reported last year, both the Commonwealth Trans-Antarctic Expedition and its New Zealand contingent were exclusively supplied with BP petroleum products. The Australian National Antarctic Research Expedition has also been exclusively supplied with BP products.

In the field of motor racing, every Formula I Grand Prix race counting for the World Championship in 1957 was won on BP products. This is a remarkable achievement, unequalled hitherto.

Personnel

It is much more than a convention that this statement should end with an expression of thanks to the Group's personnel, for the success of our operations is principally due to the enthusiasm and ability of the whole body of our employees. I am sure, therefore, that you would wish me on your behalf to record our high appreciation of their work wherever they may be.

Sulmac Exploration Services Ltd., of Toronto, have prepared and are mailing monthly newsletters of interest to those associated with mining. These should prove of particular interest to people who desire more information on all aspects of Canadian mining. The following titles have been published to date: Oil is where you find it; Metals of the Future; Minerals and Metals in Canada's Exports; Canadian Mineral Progress, 1957; and Investment Prospects, 1958.

INTERNATIONAL NICKEL COMPANY OF CANADA

YEAR OF SUBSTANTIAL PROGRESS

LARGE-SCALE EXPLORATION PROGRAMME ACTIVELY PURSUED

DR. JOHN F. THOMPSON ON THE OUTLOOK

The annual meeting of the International Nickel Company of Canada Limited was held on April 30 in Toronto.

Dr. John F. Thompson, the Chairman, presided, and in the course of his speech said:

Although 1957 was a year of sharp contrasts, the Company made substantial progress and earnings were the third highest in its history. Certain developments were favourable, others unfavourable. Fortunately, the former are of great future importance, while the unfavourable occurrences can be considered to be more or less temporary.

The Company's nickel deliveries were close to the all-time peak and copper deliveries attained a post-war high. Proven ore reserves were at a new high level at the year end. Work on our new nickel project in Manitoba proceeded on schedule.

Copper and platinum, which we recover simultaneously with nickel and which contribute much to the Company's earnings, suffered sharp price declines during the year. The base price of nickel, however, remained unchanged.

The market for nickel started the year with an over-demand so substantial that some consumers continued to pay premium prices to obtain the supplies they urgently needed. It ended with nickel in over-supply.

Nickel had been in short supply for civilian purposes for the greater part of the period since the Korean conflict began in 1950. This had been due to heavy demands for defence purposes coupled with large governmental stockpiling programs. While the extraordinary demand lessened our selling problem, it also impeded our work in creating and developing markets for the future. Some of these markets were already known and merely awaited organized development. However, market development requires a continuing and assured source of supply. Because the supply of nickel available to our customers was below that needed for established commercial applications, the amount that could be devoted to new uses was insufficient to permit launching such uses on the scale required to bring them to the stage of commercial development. The effect was to retard our whole development program and to stop some projects altogether. The abundant supply available since last autumn enables us once again to proceed aggressively with our program to develop new uses for nickel and nickel-containing products.

Manitoba Project

I should like to point out that the development of an increased supply of nickel differs entirely from an increase in capacity in certain other industries. In these industries, essentially all that is needed is the courage and decision to proceed and the necessary financial resources. In the case of nickel, the known deposits of a type suitable to our processes are comparatively rare, or of an insufficient grade or too small in size to add an appreciable supply over a period of years. Knowing the importance of the need, this Company searched for years for a nickel deposit large enough to make a real addition to world supply. This search was prosecuted vigorously—for a long time without success. As part of this search we turned our attention to Manitoba, where for many years our discoveries consisted of sizeable but non-commercial deposits. We persisted, and after a 10-year search and expenditures of $10,000,000 in this area, a commercial deposit was finally located. Within 10 months of this discovery, which occurred early in 1956, we had carried on sufficient exploration to justify announcing on December 5, 1956, our decision to proceed with the Manitoba development. This work has now been under way for over 16 months and will be carried to completion.

I have spoken of our exploration in Manitoba, but actually this is only a part of the world-wide exploration which we have been carrying on for years in recognition of the need for further sources of supply. In 1957 our exploration expenditures were the highest in our history. This large-scale exploration program is being actively pursued.

Continuing favourable results in the exploration program at our Thompson Mine in Manitoba have led us to the decision to concentrate our efforts on bringing this property into production. The Manitoba project's entire scheduled annual output of 75,000,000 pounds of nickel will, therefore, come initially from the Thompson Mine. The progress that has already been made in Manitoba is of vital importance to the future of the Company and is on schedule. Our expansion in Manitoba and Ontario will increase our annual nickel production capacity to 385,000,000 pounds by 1961.

In summary, the past year was one which saw temporary conditions reduce our immediate profits, but also one which afforded us the opportunity, particularly in the latter part of the year, to do those things essential to the development of a future increased market for nickel and the preparation of our production facilities to take care of this anticipated increased demand.

Financial Earnings

Net earnings for 1957 of $86,100,000, or $5.90 per common share, were the third highest in our history, and the Company's strong financial position was well maintained. In the previous year net earnings were at a record high of $96,300,000, equivalent to $6.50 per common share, after provision for dividends on the preferred shares which were called for redemption on February 1, 1957. Net earnings were lower principally because of greatly reduced copper prices. Also adversely affecting earnings were reduced deliveries and prices of platinum metals, a strike of 11 weeks' duration at the Huntington Works in West Virginia in the United States, and the rate of exchange between Canadian and United States dollars. These were offset in part by larger copper and nickel deliveries and by higher prices, established in December, 1956, for nickel and rolling mill and foundry products.

Foreign Exchange

Fluctuations in the rate of exchange between the Canadian and United States dollars have an important bearing on our earnings. The bulk of the Company's products is sold for United States dollars, or their equivalent in other currencies. On the other hand, the larger proportion of our expenditures is in Canadian dollars. As a result, when the value of the U.S. dollar falls in terms of the Canadian dollar, our sales produce fewer Canadian dollars from which to meet our expenditures. The reverse takes place, of course, when the value of U.S. currency appreciates. During 1957 our conversions into Canadian dollars produced on the average about 2¼ per cent fewer Canadian dollars than they would have produced in 1956.

Common dividends paid in 1957 totalled $3.75 per share, the same as in the two preceding years. Total disbursements for the year were nearly $55,000,000.

Capital Expenditures

Our construction programmes in Manitoba and in the Sudbury District of Ontario have benefited because of greater availability of equipment and supplies and quicker deliveries. We have accordingly been able to accelerate certain phases of our Canadian construction activities.

It is estimated that capital expenditures in 1958 will be between $60,000,000 and $70,000,000. In 1957 they were $43,900,000, the highest for any year, as compared with $23,000,000 in 1956. The larger part of our 1958 capital expenditures will be made in this country, with resulting benefit to the Canadian economy.

Nickel Supply

Last August I informed shareholders that there were, to us, unmistakable signs that the supply and demand position for nickel was tending to equilibrium more rapidly than generally had been anticipated. This was borne out in subsequent months which saw a turnabout. During the latter part of 1957 the free world supply of nickel, after meeting defence requirements, exceeded civilian demand.

The total 1957 supply of 295,000,000 pounds to the United States was the largest ever available to that country. It exceeded total civilian and defence consumption during the year by approximately 50,000,000 pounds. Supplies available in 1958 will again substantially exceed the consumption. The United States Government has announced its objective for 1958 of diverting to industry all of its scheduled stockpile intake, but it appears unlikely that a market demand will exist for more than a portion of this supply. Early this year, with Government approval, the procedures under which our nickel had been distributed in the United States since 1953 were discontinued and we have since been free to make unrestricted deliveries.

Sales and Distribution

The Company has the dual problem of satisfying the nickel demands of large, long-established customers and also of making the metal available in small quantities to a great number of users whose consumption in the aggregate is an important segment of our business, and from whose ranks may be expected to come the other large-quantity consumers of the future. Of great importance in this connection is our large number of distributors strategically located throughout the world who are in constant close touch with nickel consumers and are able to supply them promptly with both products and technical assistance.

Market research has always been an important function of the Company.

During 1957 this work was expanded. The development of markets to absorb the additional large amounts of nickel scheduled to become available in 1960-1961 requires an early systematic approach, since it takes a number of years to increase existing markets or to develop new markets, and even longer to develop new products and properly introduce them to industry. Present markets which lend themselves to more rapid expansion are receiving immediate attention.

Price

Our United States market price for electrolytically refined nickel, which has been in effect since December 6, 1956, is 74 cents (United States) per pound, including the 1¼ cents United States import duty. This Company has sold its nickel at market price with the exception of the nickel produced from otherwise non-commercial ore for the United States Government and sold at prices in accordance with the terms of a contract announced by that Government in June, 1953.

The Company's market price for nickel is based on a number of factors. These include production costs, the necessity of protecting our competitive position against alternative materials, and the importance of having industry accept our prices as reasonable and, as far as possible, stable.

Other Products

While copper deliveries in 1957 increased to a post-war high of 280,800,000 pounds, the average price realized was considerably lower than in the two preceding years.

Nearly 75 per cent of our copper was sold in Canada and the United Kingdom, the remainder being marketed in the United States and other countries.

The Company supplies the free world with platinum, palladium, rhodium, ruthenium and iridium. Platinum prices in the United States declined during 1957, from about $104 to $77 per troy ounce. A substantial increase in the supply of non-Canadian platinum, mainly South African and Russian, occurred at a time when demand was receding from the peak attained a few years ago after oil refiners recognized the economic advantage of using platinum as a catalyst in new processes for upgrading today's gasoline.

Deliveries of cobalt in all forms reached a new high of 2,400,000 pounds in 1957, compared with 1,500,000 pounds in 1956.

Plant Operations

Throughout the year our smelters, refineries, rolling mills and other plants operated at full or near capacity, with the exception of the Huntington Works in West Virginia in the United States, where operations were interrupted by a long strike. Throughout the strike, materials for defence were shipped, enabling military equipment contractors to meet scheduled production without interruption.

The Company's expansion and improvement programs in Canada, the United Kingdom and the United States were continued during the year, as noted in the Annual Report. One of the highlights of these activities is the work being undertaken at the Hereford Works in England, which was acquired in 1956 from the British Ministry of Supply by Henry Wiggin & Company, Limited, a United Kingdom affiliate. Beginning this month, all of Wiggin's melting operations are being concentrated at this plant. Our plans call for the ultimate transfer of all Wiggin production to Hereford.

Research

Much is heard these days concerning science and research and the increasing part they will play in the world of the future. From the standpoint of our Company, research—process as well as product research—is only one essential part of a very much more complicated picture. Certainly research is important, but it is equally important that its results should not be sterile, nor its beneficial effects unduly delayed. For research to contribute its full share, it is necessary that new processes be adopted promptly and that new products be put without delay into commercial form and made available for sale in all parts of the industrial world. Of equal importance is the fact that the consuming trades must be informed of these new products and that technical information concerning them be made readily available to permit their proper use. Thus, we look upon research as one of the first links in a long, intricate and essential chain, by which the resultant process or product of the research is made economically useful to the public and commercially profitable to the Company. In recent years, we have been intensifying still further our work in the fields of both process and product research.

First Quarter Earnings

The final figures for operations in the first quarter of 1958 are not complete, but it can be stated that earnings will be substantially lower than the $20,100,000 or $1.38 per common share, reported for the preceding quarter—the three months ended December 31, 1957. The reduction in earnings is due principally to the sharply reduced demand for nickel and rolling mill and foundry products, and a further slight decline in copper prices.

Nickel Outlook

Few elements have received the continuing attention which has been given to nickel since Canada assumed the leadership in nickel production over 50 years ago. This metal, from a lowly beginning as an "unwanted" material, has been developed into one of the most significant alloying elements ever discovered and its progress, particularly in the last quarter-century, has been outstanding in the metal field. This progress has been accomplished through our intensive exploration for new deposits, research for more efficient methods of mining, milling, smelting, and refining of the metal, and for recovery of its many by-products, but primarily through research for and development of new applications and markets, world-wide sales efforts and distributing facilities, and a planned program of technical service, advertising and publicity to acquaint and advise customers and potential consumers how to use nickel profitably and to the best advantage.

As a part of their purchases of nickel, Inco customers always have had, and will continue to have, available to them our technical knowledge and assistance and the benefit of our many years of experience in the creation and expansion of markets for nickel. We have been building this unique, rounded program for many years and are bringing our fullest energies to bear in maintaining and expanding it for the benefit of our customers and shareholders.

The report and accounts were adopted.

VAAL REEFS EXPLORATION AND MINING COMPANY LIMITED

SUBSTANTIALLY HIGHER WORKING PROFITS

The following are extracts from the statement by the Chairman, **Mr. John W. Shilling,** which has been circulated with the annual report and accounts:

The working profit derived by this company in 1957 from mining for gold was £1,979,430, as compared with £750,444 during the eight months of production in 1956. The working profit derived from the production of uranium was £1,413,582, as compared with £436,304.

The net profit for 1957 of £3,234,386 was absorbed as follows:

Capital expenditure	£1,281,823
Redemption of uranium loans	192,407
Increase in outstanding liability for pneumoconiosis compensation	2,156
Directors' special remuneration in terms of the Articles	8,000
Dividends Nos. 2 and 3 ...	1,750,000
	£3,234,386

Dividends Nos. 2 and 3 represented 3s. 6d. per share.

Immediately after the close of the financial year, Anglo American Corporation of South Africa Limited exercised its right to subscribe, at a price of 35s. per share, for 500,000 shares of 5s. each in the capital of the company. The issued capital of the company is now £2,625,000 in 10,500,000 shares, fully paid.

Capital Expenditure

Last year I mentioned that, in 1957, the capital expenditure on shaft sinking, development, buildings and equipment and on the uranium plant was likely to be about £1,368,000. Because there were savings in the cost of completing the uranium plant and because some of the work planned for the year was not completed, the expenditure actually incurred on these items amounted to £907,735. The programme planned for 1958—including the extensions to the gold reduction plant and the initial work on the new No. 2 Shaft—will involve expenditure of approximately £1,400,000.

The target of 65,000 tons milled per month set for the end of 1957 was achieved in July, 1957—some months earlier than expected. The yield increased from 7.541 dwt. of gold for the eight months of production in 1956 to 8.888 dwt. of gold per ton in 1957.

Although working costs rose by a little more than 1s. 6d. per ton, the working profit from gold increased from 37s. 5d. to 52s. 9d. per ton milled—an improvement of 15s. 4d. per ton. In anticipation of higher tonnages being milled the gold reduction plant is being extended.

During the year 750,227 tons of uranium bearing slimes were treated in the uranium plant, which is an average of 62,519 tons treated per month. The yield improved from 0.483 to 0.667 lb. of uranium per ton treated, which was fol-

lowed by an improvement in the working profit per ton treated of 15s. 9d. Operational experience has now indicated that the uranium plant is probably capable of treating 72,000 tons per month. The question of an extension to increase the throughput capacity of the plant to match the probable increase in mill tonnages is now under discussion with the Atomic Energy Board.

Underground Development

The rate of development underground was substantially increased during 1957, when the total footage advanced rose to 98,275 ft., as compared with the total of 55,575 ft. accomplished in 1956. Of the 24,560 ft. sampled, 76.2 per cent proved payable, averaging 537 in. dwt. of gold and 39.88 in. lb. of uranium. The decrease in payability and in value was not unexpected as most of the development was exploratory and took place in the No. 1 Shaft area, where it was anticipated that values would be lower than in the No. 3 Joint Shaft area. In the haulages being advanced northwards on 56 and 59 levels from No. 1 Shaft in the general direction of borehole V.4 the reef was intersected in the first half of the year.

At the end of 1957, the ore reserve had been increased by 332,600 tons to 1,813,000 tons, with a value of 10.03 dwt. of gold and a value of 0.841 lb. of uranium per ton. This represented a decrease of 0.35 dwt. per ton in the gold content and an increase of 0.075 lb. per ton in the uranium content of the ore reserve, as compared with last year's figures. It is evident because of the nature and magnitude of the faulting encountered that the current rate of development of 8,000 ft. per month should be increased in order to build up the ore reserve to a satisfactory level and to enable exploratory work to proceed on the scale required.

Work done during 1957 has revealed that, if a material increase in tonnage is to be achieved, the need for additional ventilation and hoisting capacity will arise earlier than was contemplated a year ago. The plans for sinking the new No. 2 Shaft have accordingly been advanced and work has started on the site, with the object of undertaking sinking operations soon after the first quarter of 1959.

The assessed loss, for tax purposes, at December 31, 1957, was estimated at £9,775,000. No tax will become payable until the total of the company's taxable profits subsequent to December 31, 1957, reduced each year by the capital expenditure incurred in that year, exceeds £9,775,000. After the stage has been reached when tax does become payable, capital expenditure will continue to rank as a deduction, for tax purposes, against the profit of the year in which the expenditure is incurred.

WESTERN REEFS EXPLORATION AND DEVELOPMENT COMPANY LIMITED

(Incorporated in the Union of South Africa)

NOTABLE IMPROVEMENT IN TONNAGE MILLED

The following extracts are from the statement by the chairman, **Mr. John W. Shilling**, which has been circulated with the annual report and accounts for 1957:—

The results of mining operations during the past year reveal a number of satisfactory features. The tonnage milled was greater than the tonnages milled in each of the previous two years. This was notable for two reasons. First, there was a shortage of Native labour on the mine during the last four months of the year. Secondly, a large proportion of the tonnage milled was drawn from the Vaal reef horizon where, due to the narrower stoping width, a greater fathomage must be broken to produce a given tonnage than when mining on the Ventersdorp Contact and Elsburg reefs. The gold yield increased from 4.10 dwt.—the average yield in 1956—to 4.43 dwt. per ton milled. The tonnage treated for uranium, at 2,571,492 tons, was greater by 62,580 tons than the tonnage treated in 1956. The uranium yield was fractionally higher. As an outcome, notwithstanding a small increase in working costs of about 1s. 6d. per ton milled, the working profit from gold rose to £807,089 and the working profit from uranium and sulphuric acid production rose to £1,861,578, making a total of £2,668,667 for the year. This was greater, by £343,392, than 1956.

Profit and Allocations

The net profit for 1957 of £2.579,311 was dealt with as follows:

Net profit	£2,579,311
Less: Appropriations other than for dividends ...	1,606,633
Net surplus for 1957 ...	£972,678
Add: Unappropriated profit brought forward from 1956	309,534
	£1,282,212
Less: Dividends Nos. 32 and 33	875,000
Unappropriated profit carried forward	£407,212

Of the amount of £1,606,633 appropriated from profits for purposes other than dividends, £992,000 was required to meet income tax and for the Government's share of profits and £521,908 was used for redemption of uranium loans. Other items were £45.234 for capital expenditure, £35,000 as a provision for diminution in value of stores and materials, £8,000 for directors' special remuneration and £4,491 for the increase in outstanding liability for pneumoconiosis compensation.

Capital expenditure during the year on shaft sinking, development, buildings and equipment and on the uranium plant amounted to £32,548. An increase in investments, less net recoupments of property, amounted to £12,686, making a total of £45,234 appropriated from profits for capital expenditure. Capital expenditure during 1958 is estimated at £182,000.

Tax and Lease Charges

The improvement in the working profit in 1957 made it possible for the company to meet the large tax and lease payments due to the State and to maintain the dividend of 2s. 6d. per share for the year, without drawing on the uranium reserve. In earlier years reference has been made to the fact that, with the redemption for tax purposes, of the major portion of the capital expenditure on the uranium and acid plants, tax and lease payments—which started again in 1954—could be expected to increase. The following short table illustrates how these charges have increased in the four years concerned:—

Year		*Tax and Lease Payments* *Tax*	*Lease*	*Total*
1953	...	—	—	Nil
1954	...	8,187	—	8,187
1955	...	427,518	27,993	455,511
1956	...	559,487	77,132	636,619
1957	...	850,000	142,000	992,000

If profits are maintained at the present level, the indications are that the total of tax and lease charges will again increase during 1958.

Development Results

A total of 89,978 feet was developed during 1957 on the Ventersdorp and Elsburg reefs in the existing lease area, on the Vaal reef, in the Goedgenoeg section and in the Nooitgedacht prospect area. This footage was about the same as was accomplished in 1956. Of 40,270 feet sampled, 47.5 per cent proved payable, averaging 508 inch dwt. of gold and 32.03 inch lb. of uranium. The payable ore reserves blocked out on the Ventersdorp Contact and Elsburg reefs in the existing lease area, on the Vaal reef and in the Goedgenoeg section decreased by 16,000 tons to 4,546,000 tons of ore at the end of 1957 at an average value of 5.93 dwt. of gold and 0.514 lb. of uranium.

Members will doubtless have noticed the fall in the development footage on the Ventersdorp Contact and Elsburg reefs in the existing lease area. In 1957 the footage dropped to 18,597, which represented a decrease of 3,727 feet compared with the footage done in 1956 and a decrease of no less than 36,654 compared with the figure for 1954. By the end of 1957 the ore reserve on these reefs had fallen to 1,922,700 tons, representing a reduction of 496,500 over the year. These figures are a reflection of the fact that the payable zones on the Ventersdorp Contact and Elsburg reefs underlying the existing lease area have now been demarcated and that development is being confined to splitting up blocks where there is some reasonable promise of finding payable stope face.

The fall in reserves in the older part of the mine has been offset by a considerable gain in payable reserves on the Vaal reef, where by the end of 1957 the ore reserve had been increased by 516,400 tons to 2,063,600 tons with a value of 8.01 dwt. of gold and a value of 0.798 lb. of uranium per ton. In the Goedgenoeg section the ore reserve, at 559,700 tons, was maintained at about the same level with a value of 4.51 dwt. of gold and a value of 0.177 lb. uranium per ton.

Up to the end of 1957 prospecting in the Nooitgedacht area had disclosed

425,600 tons of payable ore with a value of 6.14 dwt. of gold and a value of 0.252 lb. of uranium per ton, but as the area is being opened up under permit, this tonnage has not been included in the total ore reserve. The question of applying for an extension of the mining lease area to include the Nooitgedacht area will be considered as soon as it is possible to ascertain the extent of the area underlain by payable reef. In the meantime, your company has authority to mill ore derived from development and stoping operations in this area.

While the prospecting and opening up of the Goedgenoeg and Nooitgedacht areas is important, it is still more important to develop reserves on the Vaal reef horizon where the payability and the values of both gold and uranium are significantly higher. During 1957, development work from the haulages on 50 and 59 levels was continued in order to confirm the general line of the outer limit of the payable reef to the south and south-east as lying between beacon WK.3 and surface borehole WK.24. In the haulage being advanced on 62 level towards surface borehole N.14, the Vaal reef was intersected at a distance of 10,800 feet from No. 3 Joint Shaft. Of 175 feet sampled, 42.86 per cent proved payable, averaging 289 inch dwt. Because of the depth and distance of this working from No. 3 Shaft, only a limited amount of work is possible from this haulage.

Surface borehole N.17 was deepened and, at a depth of 6,385 feet, the Vaal reef was intersected assaying 5.0 dwt. of gold and 0.33 lb. of uranium over a width of 4 inches—equivalent to 20 inch dwt. gold and 1.32 inch lb. uranium.

Mining Finance—*Continued*

Tin Dredging Ltd. was brought into operation.

The following dredges were closed down in February and were still inoperative at the end of the quota period: Tekka Taiping Ltd., Kinta Kellas Tin Dredging Ltd., No. 1 Kampar Malaya Dredge of Southern Kinta Consolidated Ltd., Hongkong Tin Ltd., and Killinghall Tin Ltd.

In March the No. 5 (Teja Section) Dredge of Southern Malayan Tin Dredging Ltd. and the No. 1 Dredge (Kinta Section), Southern Kinta Consolidated Ltd., suspended operations.

Stocks of tin-in-concentrates on mines and in the hands of ore buyers within the Federation of Malaya on March 31, 1958, totalled 4,468 l.tons.

TINTO'S URANIUM OPTIMISM

The future demand for uranium in relation to supply, especially when existing Government contracts run out in the early and mid-sixties, is a subject about which there is much controversy and divergence of opinion. It is only natural that a group such as Rio Tinto, which has branched out so heavily into the production of this metal, should be optimistic, but the president of Rio Tinto of Canada, Mr. Robert Winters, in his annual address, backs his opinion with some impressive arguments. Comparison of uranium ore reserves in the Free World with mill capacities, existing and planned, shows that the reserves will be exhausted in about 25 years, Mr. Winters says, but the rate of decline will not be even from country to country. Thus he estimates that Canada's reserves, probably the largest in terms of contained uranium oxide, will almost certainly outlast the century, "while United States known reserves could be exhausted in the matter of a decade".

Mr. Winters cites the prospect of a completely nuclear-powered U.S. fleet among the evidence that military demand for uranium is unlikely to be reduced much below the present level. He tells an impressive story of the way in which the civilian use of nuclear power is building up and points out that competition from thermo-nuclear energy is unlikely for 20 years or more. "I believe the time has come for the pessimistic thinking about uranium in recent months to give way to forward-looking optimism. . . . The United States Atomic Energy Commission has options to purchase large additional quantities of Canadian uranium up to 1966. . . . I am of the opinion that before the United States options expire conditions will be such that the A.E.C. will wish to exercise them in whole or in part".

Here then is the bright side of the uranium picture. Meanwhile, Rio's Canadian mines should be well into their stride this summer and one, Algom, has already made a beginning on clearing off its long-term debt out of earnings.

MURCHISON'S ANTIMONY

The uranium producers with their government contracts at fixed and profitable prices must be the envy of a company such as Consolidated Murchison which makes a highly fluctuating living from a metal, antimony, the demand for which can fade away almost overnight. Thus Murchison turned a September quarter profit of £138,735 last year into a loss of £44,575 in the December quarter. In the first three months of 1958 there was a recovery to the modest profit of £27,459. In the last six months of 1956 over £200,000 a quarter was being earned.

In the 1957 annual report the chairman, Mr. S. G. Menell, does not go any further on the side of optimism than to say that recently there has been a little improvement in the U.K. consumption of antimony. The market generally remains quiet with unabated competition from Bolivia, Russia and China while on November 1 last the U.K. price dropped by £25 to £197 10s. per ton for 99.6 per cent regulus. Murchison sells ore so the chairman hopes that the recent U.K. increase in the import duty on antimony metal and oxide may have some effect on the demand for the company's ore.

Mining economies are being effected by suspending operations in certain sections of the South African property. These will not weaken the position should there be any sudden revival in demand for antimony because development at the main Gravelotte section is several years ahead of mill requirements and stocks of concentrates are such that buyers can be promptly satisfied.

Murchison's profit after tax last year was £243,794 against £534,790 in 1956 and dividends totalled 110 per cent on the 5s. shares compared with 250 per cent. At 27s. the yield on the 1957 payment is over 20 per cent, but a fresh cut in distributions now looks likely for 1958.

CONSOLIDATED MURCHISON (TRANSVAAL) GOLDFIELDS AND DEVELOPMENT COMPANY

(Incorporated in the Union of South Africa)

MR. S. G. MENELL'S REVIEW

The 24th annual general meeting of Consolidated Murchison (Transvaal) Goldfields and Development Company, Limited will be held on June 3 in Johannesburg.

In his review for 1957 the Chairman, **Mr. S. G. Menell,** said :—

During the past year the overseas demand for antimony concentrates declined still further and resulted in a decrease of revenue from £1,294,847 to £815,003.

A comparison of operations with the previous year shows a decrease in the tonnage milled from 163,776 tons to 114,717 tons, and a decrease in expenditure from £514,410 to £481,974.

The profit for the year after providing for taxation was £243,794 as compared with £534,790 in the previous year. During the year £4,229 was appropriated for capital expenditure and dividends Nos. 26 and 27 absorbed £228,800.

In order to reduce working expenditure for the current year, work has, since the end of the financial year, been suspended at the Mulati, Monarch, Weigel and United Jack sections where operations were mostly directed towards reclamation and the furtherance of plans for exploratory development and as such did not contribute to any significant extent to current requirements of ore. Exploratory development on the fifth level, Gravelotte section, has also been suspended. The tonnage necessary for the present programme of production is being derived solely from this section where development is several years ahead of the requirements of the mill.

Stocks of concentrates are being maintained at the level necessary to ensure that the Company is in a position to meet promptly any enquiries for its products.

Unabated Competition

The market, generally, for antimony remains quiet, with unabated competition from Bolivia, Russia and China. Members may have noticed the recent U.K. increase in the import duty on antimony metal and oxide and this may have some effect in the demand for our ore.

On November 1, 1957, the U.K. metal price for 99.6 per cent regulus was reduced from £222 10s. to £197 10s. per long ton, which has also affected ore prices. More recently, however, there has been a little improvement in the U.K. consumption.

The Maxam Division of the Holman Group has produced a film entitled "A Measure of Maxam", dealing with the application of pneumatic and associated equipment for the automatic control of production processes. The film will be shown for the first time in public at the Production Exhibition at Olympia from May 12 to May 21. It will also be shown at the Fluid Power Conference on May 14 to May 15.

THE RHODESIA BROKEN HILL DEVELOPMENT COMPANY LIMITED

(Incorporated in Northern Rhodesia)

RECORD ZINC PRODUCTION

MR. H. F. OPPENHEIMER ON ADVANTAGES OF LOCAL MARKET

The following are extracts from the statement by the chairman, **Mr. H. F. Oppenheimer,** which has been circulated with the annual report and accounts for 1957:—

Towards the end of the year the death occurred of three men who had been actively associated with your company for many years. My father, Sir Ernest Oppenheimer, Chairman of the Company, died on November 25, Mr. W. N. Watson earlier in the same month, and Dr. J. A. Bancroft on December 11.

My father joined the board of directors in 1925 and became chairman in 1951. Much of his confidence in the mine, which suffered several serious setbacks, was due to the unshakable opinion of Dr. Bancroft, our then consulting geologist, that the mining problems could be overcome and that the orebody would prove to be far greater than was originally estimated. It was on Dr. Bancroft's insistent advice that the mine was thoroughly explored and new mining techniques developed to exploit the ore exposed. Much of the work entailed was carried out at the mine by Mr. Watson, who served the company loyally and energetically for thirty-three years and, at the time of his retirement in April, 1957, was Manager at the Mine. It was largely because of the determination and perseverance of these men, through many difficult times, that Broken Hill is today a mine with many years of fruitful activity ahead of it, and we owe them a debt of very real gratitude.

Markets and Prices

I am privileged to assume the chairmanship of the company at a time when it has an important part to play in a rapidly developing country. Most of the output of lead from the mine is now sold in Southern Africa and, although some of the zinc has still to be sent overseas, I believe that our entire production will, in the not-too-distant future, find ready markets close at hand. Thus, although the price for our metals must clearly continue to be affected by world conditions, we shall be in an advantageous position because of our local market.

During the year there have been heavy falls in the price of most non-ferrous metals, and lead and zinc have not escaped. The price of lead, which in January, 1957, was around £116 a ton, followed the downward trend of other metals to about £73 at the end of the year. Zinc suffered similarly, dropping from £103 a ton in January to about £61 a ton at the end of the year.

The sharp decline in the prices of these metals was due basically to world overproduction, which was emphasized by falling consumption in the United States. Contributory factors were the possibility of tariff increases being imposed and the uncertainty regarding continued stockpiling activity in the United States. It seems unlikely that the markets will stage any significant recovery until world production and consumption are more closely balanced.

Our production of zinc in 1957 reached a record level of 29,500 tons, all of which was sold, and despite the world market situation, we can confidently expect that the 1958 production, which is expected to be of the same order, will find a ready market.

Lead production at 15,000 tons fell slightly short of last year's record. This production was also disposed of without difficulty and the outlook for 1958, when our production will be at a lower level, is such that we shall not be able to satisfy the full requirements of our customers.

Problems connected with sintering, together with current metal prices, have so reduced the profit margin when producing through the lead-blast furnace, that the decision has been taken with some reluctance to revert to the Newnam hearth plant, and to accept a lower level of production in order to achieve lower costs. In consequence, lead production during 1958 will be about 12,000 tons, which is considerably less than the demand in Southern Africa for the metal. The improvement of sintering methods and, more generally, the search for more efficient and more profitable techniques are being constantly studied by the consulting engineers. Research projects which may be applicable to our mine's requirements are being undertaken, but insufficient progress has yet been made for us to say whether or not these will be of economic importance.

Reduction in Costs

It is gratifying to be able to report that the efforts my father mentioned last year to reduce costs have met with a measure of success. The persistent upward trend of operating costs has been reversed and a slight but significant reduction achieved during the year. I hope that with the co-operation of everyone concerned a further reduction in costs will be possible.

The profit after taxation for the year (excluding a profit of £66,000 on the sale of the Iron Duke Mine) was £909,000, which was £400,000 less than in 1956. Capital expenditure, largely in respect of Mita Hills Dam, was £875,000. Against this, we have been able to take account of the forward provision of £150,000 at the end of the previous year, of the revenue from the sale of the Iron Duke Mine, and of £200,000 so far drawn against the Broken Hill municipal loan, and we have therefore only had to appropriate £450,000 from profits for capital expenditure. In the present situation of the metal market, it would have been imprudent not to make some provision towards reducing the incidence of capital expenditure required to complete the work in hand, and this amount includes about £50,000 for that purpose.

It is estimated that expenditure of a capital nature during 1958 will be of the order of £400,000, of which half will be provided from the balance of the municipal loan.

It is satisfactory in the circumstances that your directors have been able to recommend a net final dividend of 7d. per unit which, together with the interim dividend of 4d., makes a total of 11d. net per unit of stock for the year.

Mita Hills Dam

The work on Mita Hills Dam was geared to a target—the advent of the rains at the end of 1957—which left little room for error. It is a credit to the consulting engineers, the mine personnel involved, and the contractors that this target was achieved. The dam is filling rapidly and will enable the Lunsemfwa Hydro-Electric Scheme to continue delivering power at full capacity throughout the year.

UNION CORPORATION, LIMITED

(Incorporated in the Union of South Africa)

ABRIDGED REPORT OF THE DIRECTORS FOR YEAR 1957

In submitting the Accounts for the year ended 31st December, 1957, the Directors state that they consider it more appropriate to refer to the Consolidated Accounts than to the Corporation's own Accounts. After providing for taxation and for outside shareholders' interest in profits of subsidiary companies, the consolidated net profit for the year was £1,578,431 plus £712,312 brought forward, making a total of £2,290,743. From the amount available for appropriation by subsidiary companies, £45,332 has been placed to General Reserve Accounts, £7,708 to Exploration Reserve Accounts and £384,717 carried forward as unappropriated profits, leaving £1,852,986 available for appropriation by the Corporation. The Directors have placed £350,000 to General Reserve Account, £300,000 to Exploration Reserve Account and have declared a final dividend of 2s. 0d. United Kingdom currency per share less United Kingdom Income Tax, absorbing £534,750. The final dividend was declared on 19th March, 1958 and makes, with the interim dividend of 1s. 0d. per share less tax, a total dividend of 3s. 0d. per share of £802,125 for the year, thus leaving an unappropriated profit in the Corporation's Accounts of £400,861 to be carried forward. After adding the unappropriated profits of subsidiary companies (£384,717) and parent company dividends receivable within the Group (£60,510) there is a consolidated balance of £845,888 to be carried forward.

Holdings of shares, debentures and other securities have been taken into the Accounts at cost or under but in no case above the market value of December 31st last, or where no market price exists, above the Directors' valuation. The Directors, as on other occasions, have thought it expedient to write down the book cost of certain holdings below both cost and market price to allow for the wasting nature of a substantial part of the Corporation's portfolio. To this end they have charged the Profit and Loss Account with £150,000, of which £25,000 has been charged in a subsidiary company's Accounts.

Since the end of the financial year arrangements have been made to provide additional finance for the Corporation's business (including the further exploitation of the Kinross goldfield) by placing privately in the Union of South Africa £2,000,000 of Unsecured 6¼% Notes at par repayable in instalments 1974/1983. The money will be made available in eight equal quarterly amounts commencing 31st March, 1958, the final payment being receivable on 31st December, 1959. The arrangements permit the Corporation to make further borrowings without consent of the Noteholders provided the total borrowings do not exceed two-thirds of the issued capital and agreed reserves as disclosed in the Consolidated Balance Sheet from time to time.

A copy of the Corporation's Annual Trade Cycles Chart, revised to date is enclosed with the Report.

GOLD MINING INTERESTS

Summary of the operating results for the past year of the Companies operating in the Transvaal and Orange Free State in which the Corporation is largely concerned :

	East Geduld Mines Limited	*Geduld Proprietary Mines Limited*	*The Grootvlei Proprietary Mines Limited*	*Marievale Consolidated Mines Limited*	*St. Helena Gold Mines Limited*	*Van Dyk Consolidated Mines Limited*
Tons Milled	1,615,000	1,144,000	2,357,000	854,000	1,392,000	919,000
Yield per ton, dwt.	6.14	3.17	4.27	5.25	5.83	3.54
Working Costs per ton	33s. 7d.	35s. 2d.	31s.	42s. 2d.	41s.	40s. 6d.
Working Profit per ton	43s. 8d.	4s. 10d.	22s. 8d.	23s. 11d.	32s. 4d.	4s.
Total Working Profit	£3,523,000	£275,000	£2,676,000	£1,022,000	£2,250,000	£184,000
Net Profit	£1,769,000	£973,000	£1,348,000	£558,000	£2,199,000	£201,000
Dividends : Total	£1,800,000	£931,000	£1,335,000	£506,000	£762,000	*
Per Stock Unit or Share	4s.	12s. 9d.	2s. 4d.	2s. 3d.	1s. 7d.	*

* Return of capital in 1957 of £277,000, or 1s. 0d. per share.

The net profit figures include revenue from other sources. Thus East Geduld Mines' dividend income in 1957 on its stockholding in The Grootvlei Proprietary Mines was £62,720 and Geduld Proprietary Mines' dividend income in 1957 on its stockholdings in East Geduld Mines and The Grootvlei Proprietary Mines was £703,498.

ST. HELENA GOLD MINES.—The sinking of No. 2 Shaft was completed in October at a depth of 5,528 feet and good progress was made with station cutting preparatory to starting development from this shaft. In March of this year a further dividend of 1s. 0d. per share was declared.

WINKELHAAK MINES.—During the year the two small vertical shafts, Nos. 1 and 3, were completed to depths of 1,590 feet and 1,584 feet respectively. In order to increase hoisting capacity a further small vertical shaft has been started some 350 feet north of No. 3 Shaft and by the end of the year had been sunk to a depth of 90 feet. Development footage during the year totalled 29,683 feet. Of this 10,365 feet was on reef and sampled, disclosing 6,645 feet, or 64 per cent., payable averaging 379 inch-dwt. The building of the Reduction Works commenced early in the year and is now nearing completion. It is anticipated that it will be possible to start trial crushing in the second quarter of 1958.

Interests in Gold Mining Companies not under the administration of the Corporation :

STILFONTEIN GOLD MINING COMPANY.—Profits from the production of gold and uranium increased substantially during the year and two dividends totalling 2s. 10½d. per share were declared.

WESTERN HOLDINGS.—Due to the milling of a greater tonnage and a rise in the grade of ore milled a marked improvement in operating results was achieved during the year ended 30th September, 1957. The working profit was £3,726,924 and two dividends totalling 5s. 0d. per share were declared. A further dividend of 3s. 0d. per share was declared in March of this year.

OTHER MINING INTERESTS

SAN FRANCISCO MINES OF MEXICO.—This Company earned a Working Profit of £1,018,000 in the year ended 30th September, 1957, and paid a dividend of 4s. 6d. per 10/- stock unit in respect of that year, the same as for the previous year. In spite of the decline during the year in the prices of base metals produced, revenue fell by only £91,000, because not only was the production of lead and zinc greater, but sales exceeded production. Although Working Profit fell by £479,000, Net Profit was only £40,000 lower, owing to a considerably smaller charge for Mexican and United Kingdom taxation. The tonnage of ore milled set up a new record for the sixth successive year, the grade being slightly higher than in the previous year. Owing to the fall in the prices of lead, zinc and copper, the Company's operations are now barely profitable.

CHROME MINES OF SOUTH AFRICA.—Due to a further improvement in the world demand for chrome ores with a consequent increase in market prices, the net profit for the year ended 30th June, 1957, was in excess of that for the previous year. The Company declared a dividend of 9d. per share in September last. Since the end of the Company's financial year, despite some softening in the market, the Company has obtained satisfactory orders for future delivery.

The Corporation is also interested, *inter alia*, in the following Companies :

SELECTION TRUST.—This Company paid a final dividend of 5s. 3d. per Ordinary Stock Unit for the year ended March, 1957, and has since declared an interim dividend of 1s. 9d. per Unit for the year ended March, 1958.

TSUMEB CORPORATION.—The net profit for the year ended 30th June, 1957, was £7,012,875 as compared with £8,021,916 for the previous year and dividends totalling 42s. 6d. per share were declared. Dividends declared during the first nine months of the current financial year totalled 13s. 9d. per share. Due to a decline in the market prices for its products since the close of the Company's financial year it has recently been decided to curtail production by 20 per cent.

OTHER INTERESTS

BAY HALL TRUST.—The net profit for 1957 was £136,244. A dividend of 17 per cent less tax was declared absorbing £103,063. The sum of £25,000 was placed to General Reserve and the amount carried forward increased from £130,144 to £138,325. The Trust's investments as at 31st December last showed at current market prices an appreciation of £911, 268 over book cost of £1,808,142.

SOUTH AFRICAN PULP AND PAPER INDUSTRIES.—After providing for taxation and depreciation and the remaining items of revenue and expenditure, the net profit for the year ended 31st December, 1957, was £486,835 as compared with £489,078 for the previous year. Provision has been made for a dividend of 2s. 0d. per share. The Company's output of paper and board increased further during the year. Work on the additions to the pulp plant and the new multi-purpose M.G. paper machine at the Tugela Mill is well advanced and production may be expected by the middle of 1958.

THE WITHOK PROPRIETARY COMPANY.—Towards the end of the year the Corporation, which already had a substantial interest in this Company, made an offer to the other members to purchase their shares at £10 1s.6d. per share with the object of acquiring the entire share capital of the Company. Sufficient acceptances have been received to enable the Corporation, if necessary, to acquire any outstanding balance of the shares under the provisions of the South Africa Companies Act. Taking its investments at market value the Company's total net assets at the end of the year amounted to £690,887.

EXPLORATION

The exploratory drilling in the Kinross area is now virtually complete. Though drilling at a greatly reduced tempo is still in progress, this work is now largely confined to defining geological structures in more detail or to following up indications from previous boreholes of the pattern of values with a view to framing in due course an application to the Mining Leases Board of the Government of the Union of South Africa for the next mining lease in the area.

The Corporation continues to be active in exploration in other parts of Southern Africa and elsewhere.

Copies of the full Report and Accounts can be obtained on application at the London Office, Princes House, 95, Gresham Street, London, E.C.2.

Metal and Mineral Trades

LONDON METAL AND ORE PRICES, MAY 1, 1958

METAL PRICES

Aluminium, 99.5%, £180 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) basis 19s. 6d./20s. 6d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 10s. 0d. lb.
Cerium (99% net), £16 0s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 8d. per gram
Gold, 249s. 2½d.
Iridium, £26 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96% - 98%) £310
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £20/£22 oz.
Osmiridium, nom.
Palladium, £7 oz.
Platinum U.K. and Empire Refined £26 15s. oz.
Imported £22/£23
Quicksilver, £76 10s. ex-warehouse nom.
Rhodium, £40/£42 oz.
Ruthenium, £15/£18 oz. nom.
Selenium, 50s. 0d. per lb.
Silver, 76½d. f. oz. spot and 75½d. f'd.
Tellurium, 15s./16s. lb.

ORES AND OXIDES

Bismuth	30% 5s. 0d. lb. c.i.f. 20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48%	£17 5s. 0d. per ton c.i.f.
,, Hard Lumpy 45%	£18 0s. 0d. per ton c.i.f.
,, Refractory 40%	£12 5s. 0d. per ton c.i.f.
,, Smalls 44%	£16 5s. 0d. per ton c.i.f.
Baluchistan 48%	£12 0s. 0d. per ton f.o.b.
Columbite 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£26 5s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£22 0s. d/d
Manganese Ore Indian—	
Europe (46% - 48%) basis 67s. 6d. freight	nom.
Manganese Ore (43% - 45%)	nom.
Manganese Ore (38% - 40%)	nom.
Molybdenite (85% basis)	8s. 5d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£39/£40 per ton c.i.f. Aust'n
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	82s. 0d./85s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 90 - 95% V_2O_5	£10 per unit c.i.f.
Zircon Sand (Australian) (65 - 66% ZrO_2)	£16 per ton c.i.f

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Supplement to **The Mining Journal**—May 2, 1958

The Mining Journal

ANALYSIS OF RAND AND O.F.S. QUARTERLIES

ALL EYES ON AMERICA

DURING the past quarter, the Kaffir market has been neither appreciably better nor worse than in the preceding three months. Among new mines, only St. Helena and Harmony have broken through the peak levels of the previous quarter. Principally, this pause seems to reflect continuing market uncertainty as to the seriousness and duration of the American economic recession and as to the extent to which this recession will be exported to Europe.

Moreover, the December quarterly results as a whole, as well as the Anglo American O.F.S. annual reports and March dividend payments, though sound and solid produced few outstanding results calculated to inspire the short-term operator, while the recovery of British reserves from last autumn's low point (even though this may yet turn out to be transitory) has done nothing to encourage switching into gold.

Having regard to the intrinsic merits of a number of Kaffir shares, both among new mines and those with a good break-up prospect, it is a little surprising to find that more investors have not moved into this market on the argument that they stand to lose nothing and that, if things go seriously wrong in America, they could gain very substantially. However, there is still time enough for this to occur now that the South African elections are out of the way, as it seems unlikely in the extreme that any action regarding the gold price would occur before next autumn, which is normally the decisive season of the year for the economies of most of the Western countries.

Despite this standstill period in the revival of Kaffir prices, there has been some fairly large trading at times in the new mines and certainly little sign of eager sellers. There has also been steady buying of mines in the break-up category (i.e. mines with a life of not more than five years), such as Rand Leases, New Kleinfontein, City Deep, Simmer and Jack, etc., on what seems to be the well-founded view that at present prices they offer an assured profit on break-up quite aside from any possible gold price increase. Also some of the more promising mines in the short or medium life categories have come in for attention, as well as Randfontein and West Rand Consolidated which reflect the more optimistic view that some investors are taking of the long-term uranium outlook.

The American Investor

There has been a certain amount of isolated buying of new shares from the U.S.A., and the fact that this has not developed to a greater extent is a measure of the continued buoyancy of investment sentiment on Wall Street in the face of the recession. There seems little doubt, however, that any substantial loss of confidence on Wall Street would see increased American buying of Kaffirs. This could well be an important and novel factor in the Kaffir market in that previous Kaffir booms have owed very little to heavy American buying.

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In these days, however, American institutional investors are much more internationally minded than before the war, and it would not be surprising to see the American private investor follow suit. Certainly, public opinion in the States seems of late to have been less openly critical of South African racial policies than it was a year or so back, and the links, which exist between American and South African mining interests through Kennecott and more recently through the Englehard interests in the Rand American Investment Trust and the Corner House group, suggest that it should not be difficult for purchases of South African gold shares to be promoted in the States with, as it were, the endorsement of American mining interests which already have the confidence of the American investor.

What Should Kaffirs Yield ?

Perhaps one important pointer for the future is that, although shares in all sections of the market have shown signs of being tightly held, it has, in fact, proved possible to place substantial buying orders without moving the market to any great extent. This raises the interesting speculation as to how readily the groups have, and still more will, make stock available at present prices to meet a growing demand. There is little doubt that the industry would deprecate any runaway boom in share prices, and in so far as they felt that intervention could be effective, the groups might well be ready sellers.

It remains to be seen, of course, at what point the groups will regard their mines as being over-valued, and this depends very much upon the view taken as to what today constitutes a reasonable yield on established long life producers.

With most of the new O.F.S., Klerksdorp and Far West Rand mines now having come "on stream" and being likely to approach their maximum mill throughput in a matter of three years or so, a great deal of the speculative element has gone out of the Kaffir market as it is now possible to estimate with some degree of accuracy the probable future earnings from these mines. This in itself justifies a lower yield on Kaffirs than used to be regarded as desirable.

The Gold Price

All this, of course, takes no account of the one essentially speculative factor in the Kaffir market, namely the possibility of an increase in the gold price. If this contingency really appeared probable at any time, the buying pressure would almost certainly build up to a point where the groups would be quite powerless to intervene as a stabilizing influence, and, in any event, for the great majority of mines higher price levels would be justified on expectations of higher earnings.

In fact, it is still anyone's guess when we may find ourselves in a climate conducive to an increase in the gold price. However, as the American recession deepens, and begins to show signs of being exportable, the need to increase the availability of liquid reserves to sustain world trade becomes paramount. On the one hand it is doubtful whether adequate liquidity can be achieved with gold at its present price. On the other, it should be apparent within the next three or four months whether the Eisenhower administration can hope to pull the U.S. economy out of its dive this year. If not, the climate for a gold increase may at last be upon us.

If the market does get gripped by gold price fever the investor would be well

(*Continued on page* 4)

FINANCIAL RESULTS

(Cumulative and comparative "this" financial year to March 31st, 1958 with "last.")

GROUP	COMPANY	ORDINARY SHARES IN ISSUE	Months since year end	PROFIT AND LOSS RESULTS £(000)								Current financial Year's capital expenditure (Gold)	EARNINGS, DIVIDENDS & YIELD						Yield on Price 27/4/58
				Working Profit		Uranium Profit After Loan Repayment		Taxation and/or Mining Lease		Net Profit After Tax			Earned in current year to date	Paid					
														1956-7		1957-8			
				This	Last	This	Last	This	Last	This	Last	£(000)		s. d.	s. d.	s. d.	s. d.		(%)
Gold Fields	*D'nfontein*	9,828,000 (10/–)	9	1650·3	1304·7	117·3	43·9	—	—	1787·8	1361·0	501·6	3/8	—	—	6	1 0		6·1
	Libanon	7,937,300 (10/–)	9	480·0	493·2	—	—	—	—	494·2	506·4	307·2	1/3	3½	3½	3½	3½		—
	Luipaards Viei	4,969,105 (2/–)	9	19·8	87·1	534·5	367·0	225·1	151·3	338·2	314·9	30·8	1/4	10½	10½	1 0	1 1		19·0
	Rietfontein C.	1,122,252 (5/–)	3	42·5	48·1	—	—	17·9	21·8	26·3	28·0	—	6d.	1 1	1 1	1 1	1 1		24·8
	Robinson	2,000,000 (7/6)	3	17·7	17·6	—	—	—	—	22·6	31·8	3·9	3d.	3	6	6	9		13·5
	Simmer	6,750,000 (2/6)	3	42·2	52·0	—	—	3·1	5·7	43·6	58·7	0·3	2d.	5	5	5	5		19·6
	Sub Nigel	1,771,875 (10/–)	9	247·8	415·5	—	—	87·6	155·7	179·1	274·2	28·5	2/–	2 4½	2 4½	1 9	1 6		23·2
	Venterspost	4,900,000 (10/–)	9	495·9	591·5	—	—	112·3	103·7	401·2	508·9	81·1	1/8	10½	10½	10½	10½		7·15
	Vlakfontein	6,000,000 (10/–)	3	247·9	250·4	—	—	121·3	121·3	131·9	134·9	5·2	5d.	9	10	10	11		10·9
	Vogels	5,028,571 (10/–)	3	137·7	174·7	84·0	86·0	118·9	101·1	109·7	158·2	0·9	5d.	1 8	1 6	1 4	1 2		27·0
	W. Drie	7,041,080 (10/–)	9	5318·2	5210·9	164·2	79·6	2076·4	2044·1	3448·0	3238·5	1946·7	9/10	3 0	3 0	3 3	3 6		—
Anglo American	Brakpan	4,600,000 (5/–)	3	31·8	34·1	—	—	3·6	4·1	33·3	38·0	8·6	2d.	4½	6	4½	4½		15·8
	Dagga	7,000,000 (5/–)	3	708.0	789·8	263·2	230·2	602·6	625·2	383·1	414·0	—	1/1	2 9	2 9	2 6	2 9		17·6
	E. Dagga	3,730,000 (10/–)	3	78·3	96·0	—	—	33·1	40·2	49·9	62·0	—	3d.	9	9	9	9		16·9
	F. S. Geduld	10,000,000 (5/–)	6	1899·5	699·3	—	—	—	—	1913·1	707·6	597·1	3/10	—	—	1 0	2 0		3·75
	Loraine	16,453,372 (10/–)	6	L99·4	L40·9	109·7	69·3	—	—	13·8	32·5	168·9	—	—	—	—	—		—
	P. Brand	13,000,000 (5/–)	6	2627·5	2289·3	174·4	135·7	—	—	2805·4	2443·4	765·6	4/4	2 0	2 6	2 6	2 6		10·45
	P. Steyn	13,000,000 (5/–)	6	1132·6	1195·3	211·9	218·2	—	—	1354·2	1427·7	107·8	2/1	1 0	1 3	1 6	1 3		10·25
	S. A. Lands	2,475,000 (3/6)	3	147·3	195·7	—	—	57·6	87·9	95·6	114·8	57·8	9d.	1 6	1 6	1 6	1 6		13·95
	Springs	10,110,000 (5/–)	3	23·2	18·0	—	—	6·6	3·4	20·9	20·6	—	—	2½	3	—	4½		18·75
	Vaal Reefs	10,000,000 (5/–)	3	512·0	419·5	288·8	198·9	—	—	810·1	626·8	198·4	1/7	—	1 0	1 3	2 3		8·95
	Welkom	12,250,000 (5/–)	6	403·6	279·1	181·6	1·1	—	—	593·2	293·5	410·9	1/–	—	—	3	3		3·9
	W. Holdings	7,496,376 (5/–)	6	2214·5	1593·7	—	—	—	—	2229·9	1619·6	797·5	5/11	2 0	2 0	3 0	3 0		6·8
	W. Reefs	7,000,000 (5/–)	3	168·0	186·0	287·8	303·8	231·8	245·3	232·0	254·8	13·9	8d.	1 3	1 3	1 3	1 3		9·6
Central Mining	*Blyvoor*	24,000,000 (2/6)	9	3863·6	3888·9	800·0	575·4	2702·7	2362·5	2084·9	2203·3	Cr.105·1	1/9	1 0	1 0	1 0	1 0		9·4
	City Deep	2,026,832 (£1)	3	27·7	55·8	—	—	0·7	—	43·4	85·8	34·4	5d.	—	6	6	6		—
	Cons. M. R.	1,247,602 (£1)	9	91·1	80·4	—	—	6·4	6·3	114·8	115·9	—	1/10	1 6	1 6	1 3	1 3		14·7
	Crown	1,886,125 (10/–)	3	48·0	L20·4	—	—	6·0	4·6	64·5	33·2	Cr. 0·1	8d.	3 0	2 0	1 0	1 3		9·25
	Durban Deep	2,325,000 (10/–)	3	149·2	157·8	—	—	34·5	38·5	134·7	144·8	43·6	1/2	1 3	1 6	1 6	1 6		10·35
	E. Rand Prop.	3,960,000 (10/–)	3	435·3	481·5	—	—	113·6	130·9	351·1	398·2	103·8	1/9	2 0	2 6	2 3	2 3		10·3
	Harmony	18,000,000 (5/–)	9	1420·4	1314·4	630·9	481·6	0·3	0·1	2068·5	2026·5	1329·1	2/4	6	6	9	1 0		5·05
	Modder E.	930,805 (£1)	9	23·1	67·3	—	—	9·6	12·5	33·6	77·6	—	9d.	1 0	1 0	1 0	9		12·5
	Rose Deep	700,000 (9/6)	3	13·8	0·5	—	—	1·5	—	16·9	11·8	—	6d.	—	—	—	—		—
	Transvaal G. M. E.	952,500 (3d.)	3	L2·4	7·7	—	—	—	—	L8·4	6·2	—	—	5	10	—	—		—
J.C.L.	*E. Champ d'Or*	2,079,000 (2/6)	3	18·2	18·7	(a)	(a)	6·3	5·7	12·0	13·3	—	1d.	3	7	3	4		29·2
	Freddies C.	16,359,913 (£1)	3	18·6	L6·6	(a)	(a)	—	—	8·6	L16·7	24·8	—	—	—	—	—		—
	Govt. G. M. A.	5,600,000 (4/6)	3	3·7	L70·1	—	—	14·9	—	62·3	L21·0	—	3d.	3	3	—	—		—
	Randfontein	4,063,553 (£1)	3	345·6	316·1	(a)	(a)	133·0	81·0	217·7	243·6	6·7	1/1	2 6	2 6	2 3	2 3		17·5
Union Corporation	E. Geduld	9,000,000 (4/–)	3	763·2	877·8	—	—	413·7	476·3	373·5	431·7	0·1	10d.	2 0	2 3	2 0	2 0		16·3
	Geduld Prop.	1,460,857 (£1)	3	30·2	79·3	—	—	3·3	23·4	39·0	67·2	—	6d.	6 9	7 6	6 3	6 6		20·6
	Grootvlei	11,438,816 (5/–)	3	617·8	641·8	—	—	320·9	328·2	322·1	341·4	—	7d.	1 1	1 4	1 1	1 3		14·35
	Marievale	4,500,000 (10/–)	3	244·1	248·0	—	—	122·7	121·7	131·6	137·8	30·2	7d.	1 0	1 3	1 0	1 3		12·35
	St. Helena	9,625,000 (10/–)	3	538·8	560·5	—	—	—	—	554·8	569·0	250·3	1/2	7	9	10	1 0		4·60
	Van Dyk	5,532,000 (9/–)	3	63·9	8·9	—	—	—	—	74·1	16·5	—	3d.	—	—	—	—		—
General Mining	*Buffelsfontein*	11,000,000 (10/–)	9	1594·2	247·3	939·9	—	—	—	2553·6	247·3	1045·2	4/8	—	—	—	1 6		—
	Ellaton	787,500 (5/–)	9	256·4	163·1	129·2	112·3	—	—	390·4	278·0	Cr. 3·3	9/11	—	—	—	—		—
	Stilfontein	13,062,920 (5/–)	3	1125·8	736·6	168·5	120·4	—	—	1310·6	872·3	479·8	2/–	6	6	1 0	1 0		7·3
	S. Roodepoort	1,420,662 (10/–)	9	216·6	213·2	—	—	91·0	93·1	138·9	132·9	21·3	1/11	1 1½	1 1½	1 1½	1 1½		—
	W. Rand Cons.	4,250,000 (10/–)b	3	602·0	625·6	(a)	(a)	310·0	268·0	254·9	326·9	10·4	11d.(c)	1 9	2 3	2 0	2 3		16·2
Anglo-Tvaal	*Hartebeesfontein*	9,000,000 (10/–)	9	2756·2	2017·4	1879·3	817·5	—	—	4639·1	2792·3	1511·2	10/4	1 6	1 6	2 6	3 0		9·35
	Rand Leases	3,600,000 (10/–)	9	33·0	L180·3	—	—	2·5	—	79·9	L138·1	19·8	5d.	1½	1½	1½	3		8·1
	Village Main Reef	6,068,457 (1/3)	9	39·1	72·3	—	—	7·4	14·2	37·9	65·2	—	1d.	1	1	1	1		—
	Virginia	13,278,952 (5/–)	3	99·1	191·1	271·8	407·9	—	—	319·9	553·5	400·3	6d.	—	—	—	—		—
Others	N. Kleinfontein	1,735,000 (£1)	3	1·5	L31·7	—	—	—	—	5·2	L26·9	—	—	—	—	—	—		—
	Spaarwater	7,974,968 (5/–)	3	1·5	0·7	—	—	—	—	2·5	1·2	—	—	—	—	—	—		—
	Wit Nigel	7,974,720 (2/6)	9	56·0	61·6	—	—	—	—	66·1	68·8	4·7	2d.	—	—	—	—		—

(a) Included under working profit. (b) And deferred shares.

DEVELOPMENT AND MILLING RESULTS

(Cumulative and comparative "this" financial year to March 31st, 1958 with "last.")

GROUP	COMPANY	Months to year end	TOTAL ORE RESERVES			DEVELOPMENT RESULTS						MILL THROUGHPUT													
						Payability						Tonnage				Gold Recovered						Working Profit			
						Ft. Sampled (000)		%		Av. value (In.-dwt.)		Milled (000)		Cost per Ton		Ounces (000)		Grade (dwt. per ton)		Cost per ounce		Per ton		Per oz.	
			Tons (000)	Value (dwt.)	Inch dwt.	This	Last	This	Last	This	Last	This	Last	This	Last	This	Last	This	Last	This	Last	This	Last	This	Last
Gold Fields	*D'nfontein*	9	1,956	7·4	300	19·1	13·8	91	90	428	551	767	683	60/6	62/4	317·7	274·0	8·3	8·0	146/1	155/5	43/–	38/3	103/11	95/3
	Libanon	9	2,463	4·7	227	16·3	12·9	67	74	279	294	918	876	45/10	45/1	206·6	196·5	4·5	4·5	203/6	200/8	10/5	11/3	46/6	50/2
	Luipaards Vlei	9	1,628	4·4	176	14·6	17·4	71	68	232	218	643	732	44/4	42/7	115·1	131·2	3·6	3·6	246/8	237/7	7d.	2/4	3/5	13/3
	Rietfontein C.	3	194	5·1	263	2·2	1·6	46	52	497	476	66	75	45/2	43/11	15·4	17·0	4·7	4·5	193/8	193/8	12/11	11/2	55/2	56/7
	Robinson Dp.	3	1,338	4·5	246	0·9	2·1	28	36	433	327	214	218	51/7	48/5	45·7	43·7	4·3	4·0	241/7	241/6	1/8	1/7	7/9	8/1
	Simmer	3	994	4·2	187	6·0	5·2	42	38	298	269	249	283	45/10	42/2	49·3	52·0	4·0	3·7	231/9	229/5	3/5	3/8	17/1	20/–
	Sub Nigel	9	833	7·7	291	17·1	22·0	26	19	321	308	597	597	54/4	56/1	149·6	166·6	5·0	5·6	216/10	200/10	8/4	13/11	33/2	49/10
	Venterspost	9	2,263	5·4	292	28·9	25·0	57	62	443	468	1,085	1,112	51/4	49/1	262·3	264·5	4·8	4·8	212/3	206/4	9/2	10/8	37/10	44/9
	Vlakfontein	3	1,566	8·1	327	5·7	7·1	48	44	376	381	146	145	54/1	54/3	51·5	51·8	7·1	7·1	152/11	152/6	34/1	34/5	96/3	96/8
	Vogels	3	2,321	5·3	224	9·5	10·6	22	25	244	286	288	298	47/2	46/7	65·3	69·5	4·5	4·7	208/2	200/–	9/7	11/9	42/2	50/3
	W. Drie	9	2,080	16·8	711	11·3	16·8	100	100	665	793	677	675	82/10	81/4	649·8	633·6	19·2	18·8	86/3	86/8	157/1	154/5	163/8	164/5
Anglo American	Brakpan	3	2,367	5·0	254	7·4	10·0	26	32	810	761	359	317	32/10	40/5	49·9	54·1	2·8	3·4	236/3	237/1	1/9	2/2	12/9	12/8
	Dagga	3	10,246	5·4	232	5·5	6·8	45	24	353	335	652	653	30/10	31/4	137·7	145·2	4·2	4·4	146/2	140/10	21/9	24/2	102/10	108/9
	E. Dagga	3	4,686	4·4	162	5·2	6·1	23	42	283	555	265	280	35/6	34/3	44·1	46·2	3·3	3·3	213/7	207/10	5/11	6/10	35/6	41/7
	F. S. Geduld	6	1,899	18·7	880	7·3	5·4	95	100	1,313	1,483	382	289	79/8	77/7	273·2	144·5	14·3	10·0	111/5	154/11	99/5	48/4	139/1	96/9
	Loraine	6	1,044	4·2	187	10·3	15·3	22	30	378	405	376	367	52/11	50/2	71·6	70·3	3·8	3·8	278/1	262/–	L4/11	L2/3	L27/11	L11/8
	P. Brand	6	3,043	17·6	888	7·4	4·2	91	93	1,348	1,326	435	361	66/2	66/2	324·7	278·1	14·9	15·4	88/8	85/10	120/10	126/9	161/10	164/6
	P. Steyn	6	3,927	8·8	390	8·6	11·4	72	68	488	547	554	532	54/5	52/6	211·9	206·8	7·6	7·8	142/4	135/–	40/11	44/10	106/11	115/8
	S. A. Lands	3	3,643	5·6	242	4·2	4·9	35	30	452	422	256	258	39/9	39/8	52·7	56·8	4·1	4·4	193/–	180/7	11/6	15/2	55/11	68/8
	Springs	3	1,965	4·3	182	2·2	2·6	41	38	615	441	372	372	26/6	26/11	41·5	41·6	2·2	2·2	237/8	240/10	1/3	1/–	11/2	8/8
	Vaal Reefs	3	1,813	10·0	397	9·0	3·9	75	85	498	636	200	167	60/8	57/8	89·8	72·2	9·0	8·7	134/10	133/4	51/4	50/3	114/–	116/3
	Welkom	6	3,471	6·5	302	6·0	6·6	68	75	418	429	488	514	58/3	51/9	145·4	128·5	6·0	5·0	195/6	207/–	16/6	10/10	55/6	43/5
	W. Holdings	6	3,930	14·0	640	7·0	9·9	91	92	1,154	1,245	574	536	54/2	54/6	301·2	242·6	10·5	9·1	103/4	120/5	77/2	61/10	147/1	131/4
	W. Reefs	3	4,546	5·9	255	7·5	11·6	54	43	475	540	328	362	47/8	43/5	76·2	77·9	4·6	4·3	204/11	201/9	10/3	10/3	44/1	47/9
Central Mining	*Blyvoor*	9	6,310	12·7	582	12·6	15·0	90	88	718	923	926	946	64/1	59/5	546·0	534·0	11·8	11·3	108/8	105/4	83/5	82/2	141/6	145/8
	City Deep	3	4,015	5·8	243	3·4	5·1	38	36	294	281	431	448	46/3	46/5	82·1	87·8	3·8	3·9	242/7	236/11	1/3	2/6	6/9	12/9
	Cons. M. R.	9	2,690	4·2	215	10·8	17·3	33	31	252	292	1,323	1,477	36/8	34/–	201·1	206·4	3·0	2·8	241/6	243/2	1/4	1/1	9/1	7/9
	Crown	3	7,599	4·8	216	5·7	11·2	28	37	288	325	676	731	36/10	36/9	103·8	106·0	3·1	2·9	240/2	253/8	1/5	L7d.	9/3	L3/10
	Durban Deep	3	8,445	4·0	240	8·9	7·5	49	44	346	422	531	547	39/4	38/–	95·7	95·8	3·6	3·5	218/2	217/–	5/7	5/9	31/2	32/11
	E. Rand Prop.	3	5,590	6·4	302	2·0	3·2	44	41	499	422	650	622	50/8	50/3	167·1	163·7	5·1	5·3	197/1	190/10	13/5	15/6	52/1	58/–
	Harmony	9	2,292	8·6	452	10·6	8·4	88	85	592	559	722	701	61/5	57/3	290·7	272·8	8·1	7·8	152/7	147/2	39/4	40/4	97/9	103/8
	Modder E.	9	1,223	3·4	138	1·7	3·0	29	47	178	182	1,224	1,248	24/10	24/9	123·1	128·4	2·0	2·1	246/11	240/10	5d.	1/1	3/9	10/5
	Rose Deep	3	423	4·3	232	1·1	1·0	32	28	237	275	169	146	32/9	38/8	23·4	22·6	2·8	3·1	236/11	249/6	1/8	1d.	11/10	5d.
	T'vaal G.M.E.	3	53	9·4	—	0·0	1·2	100	14	612	344	52	38	42/8	64/11	8·1	8·8	3·1	4·6	274/7	279/6	L11d.	4/1	L5/11	17/6
J.C.I.	*E. Champ d'Or*	3	167	1·0	31	2·4	1·7	45	49	42	42	36	34	—	—	0·9	1·0	0·5	0·6	—	—	—	—	—	—
	Freddies C.	3	1,292	5·6	224	1·2	2·1	51	66	365	389	139	165	—	—	47·0	40·6	6·8	4·9	—	—	—	—	—	—
	Govt. G.M.A.	3	662	5·7	382	0·3	0·8	42	48	294	364	187	428	49/5	41/9	36·2	65·0	3·5	3·0	255/6	274/10	5d.	L3/3	2/1	L21/7
	Randfontein	3	537	4·5	230	0·1	0·4	91	29	585	146	521	646	—	—	45·4	68·2	1·7	2·1	—	—	—	—	—	—
Union Corporation	E. Geduld	3	9,300	6·0	312	0·7	1·5	53	53	246	292	368	408	35/1	33/10	113·2	125·7	6·2	6·2	114/2	109/10	41/6	43/–	134/10	139/8
	Geduld Prop.	3	800	3·6	205	2·0	2·6	25	23	182	414	243	309	36/10	34/6	38·4	49·0	3·2	3·2	233/5	217/7	2/6	5/2	15/9	32/4
	Grootvlei	3	14,000	4·5	212	4·2	5·0	36	44	189	237	570	572	31/4	31/–	121·5	122·5	4·3	4·3	147/2	144/9	21/8	22/5	101/8	104/9
	Marievale	3	5,200	5·3	244	6·5	6·7	26	33	245	230	211	211	42/3	42/1	55·5	55·5	5·3	5·3	160/9	160/1	23/2	23/6	88/–	89/4
	St. Helena	3	3,250	6·1	342	3·4	4·0	48	44	401	380	339	350	41/11	40/9	100·3	102·0	5·9	5·8	141/7	139/9	31/9	32/–	107/5	109/10
	Van Dyk	3	450	4·0	192	2·4	4·1	21	29	267	328	224	233	38/7	40/4	39·9	38·4	3·6	3·3	216/10	244/9	5/9	9d.	32/–	4/8
General Mining	*Buffelsfontein*	9	1,157	7·4	443	19·3	8·6	96	100	589	424	985	261	49/6	51/1	322·7	73·2	6·5	5·6	151/2	182/1	32/4	18/11	98/10	67/7
	Ellaton	9	533	7·5	312	5·8	5·5	69	62	460	463	289	291	38/8	42/7	65·2	62·5	4·5	4·3	171/3	198/4	17/9	11/3	78/8	52/2
	Stilfontein	3	4,361	9·9	388	4·5	5·0	83	92	370	453	325	280	54/5	53/7	161·3	119·0	9·9	8·5	109/7	126/–	69/3	52/7	139/7	123/10
	S. Roodepoort	9	1,125	4·9	225	11·6	9·6	33	40	296	256	264	260	42/4	42/–	62·2	60·8	4·7	4·7	179/9	179/9	16/5	16/5	69/8	70/2
	W. Rand Cons.	3	5,264	3·4	170	4·9	5·8	82	72	358	322	585	653	—	—	57·8	65·7	2·0	2·0	—	—	—	—	—	—
Anglo T'vaal	*Hartebeest*	9	2,101	9·8	394	27·5	15·2	95	94	434	469	762	665	64/10	65/7	417·9	334·9	11·0	10·1	118/2	130/2	72/4	60/8	131/10	120/5
	Rand Leases	9	2,951	4·1	189	21·2	21·4	49	43	265	246	1,498	1,420	38/–	41/7	230·4	221·0	3·1	3·1	247/2	267/3	5d.	L2/6	2/10	L16/4
	Village M. R.	9	—	—	—	—	—	—	—	—	—	282	299	38/8	34/11	46·8	47·4	3·3	3·2	233/3	220/2	2/9	4/10	16/9	30/6
	Virginia	3	2,086	5·8	304	6·9	5·9	32	62	338	473	288	288	58/9	53/1	75·9	76·6	5·3	5·3	223/1	199/8	6/10	13/3	26/1	49/10
Others	N. Kleinfont'n	3	1,734	3·4	150	3·9	4·5	41	39	260	269	276	291	30/3	30/10	33·6	33·5	2·4	2·3	248/3	268/1	1d.	L2/1	11d.	L18/11
	Spaarwater	3	267	5·9	224	2·8	2·4	23	18	281	188	32	32	75/3	75/4	9·8	9·6	6·2	6·1	245/9	248/11	11d.	5d.	3/1	1/5
	Wit. Nigel	9	785	5·1	189	8·5	8·4	21	41	312	378	157	162	53/9	47/11	38·3	35·9	4·9	4·4	221/7	216/2	7/1	7/7	29/3	34/4

(c) After deferred share participation.

advised to remember two things. First, that the benefits of a gold price increase would be distributed very unevenly among the various mines, and secondly, that the consequences of a gold price rise in terms of any particular mine are unlikely to become apparent for some months. A sudden rise in the gold price is bound to have major implications for mining policy, and until such questions as average mill grade and the scale of operations has been re-adjusted to take account of the increased tonnages of payable ore, the consequences of the price rise alike on working profits and on tax can only be surmised.

The Elections

Whether or not the South African elections have themselves been a restraining factor on the market these past few months, there is little doubt that the real significance of the elections lay not in their outcome, which was virtually assured, but in the extent to which the United Party succeeded in eroding government majorities. In the event, those who looked for any signs of apathy among Nationalist supporters will have been disappointed. There was an exceptionally heavy poll—about 90 per cent—in which the government appears generally to have improved on its previous performance.

The Nationalists are clearly in power again in the Union for some years, and with a new mandate may now be more ready to attend to some of the problems of the gold industry calling for fiscal changes which may not be politically popular. Of these, the most pressing is what to do about the marginal mines both from the point of view of the industry itself and also from the point of view of the continued economic well-being of the communities which have been built up around them. There are also a number of longer-term tax problems which the government could usefully be pondering now rather than under the pressure of events at a later date. In this connection recent reports from Johannesburg suggest that a separate portfolio may be established in the new government with sole responsibility for the mining industry.

The state of the marginal mines themselves is a little better than it was a year ago, reflecting the industry's somewhat improved cost picture, which we discuss further on in this article. However, aside from any question of a higher gold price, profit margins for these mines are still much too small to be comfortable. Consequently, the question of assistance for the marginal mines must be very much in the government's mind at the present moment.

The Marginal Mines

The joint committee, set up by the government to examine the problem, presented its report some four months ago, and it is hard to see why the government should have delayed so long in acting upon it unless it has been waiting to assess the shape of things to come in the American economy. It is conceivable that by next autumn the U.S. recession could have rolled itself into a slump of such dimensions as to make the political climate favourable to a revision of the gold price. Short of it becoming apparent that this will happen, the case of the marginal mines cannot safely be left in suspense much longer.

Unofficially, the joint committee is understood to have recommended concessions in rail transport rates for marginal mines as well as provision for a more rapid scaling down of the labour force and relief from the necessity of carrying learners on the pay-roll. It is not known whether the committee has also advocated the assumption by the government of terminal silicosis liability although this would obviously be of considerable assistance.

In the absence of a rise in the gold price, we are obviously getting to a point where some of these mines might well be worth more dead than alive, not merely to the shareholder awaiting his break-up realization, but equally to a country in which the rate of industrialization is in the long run likely to be limited more by the size and skill of its labour force than by any other factor. The closing down of these mines would naturally pose local problems of re-deployment but these are part and parcel of the problems of government and inseparable from economic progress. With the elections out of the way, the government will presumably feel freer to examine this issue objectively.

Long-Term Tax Policy

Looking further ahead the government's future tax policy for the gold industry must surely be influenced by the position which will obtain when the new mines have amortized their initial capital expenditures and begin to pay large sums in tax. In some cases this stage may quite well be deferred further than present calculations might indicate as a result of decisions to expand mill capacity further or to accelerate the rate of mining. Sooner or later, however, taxes will begin to pour in. What then will the government do with its large new inflow of revenue ?

There are three main directions in which tax relief could be granted to the industry any time that the government concluded that the gold producers were carrying a disproportionate tax burden. Obviously, the government's first thought will be for the marginal mines but the cost of keeping these alive would be unlikely to absorb more than a small portion of this new prospective revenue.

Of more general interest to the industry as a whole is that both in respect of its gold and uranium production it has for many years been taxed quite disproportionately to the rate which applies for the remainder of the mining industry, and there is certainly a case for modifying the tax formula, alike for gold and uranium. If this is too big a mental switch to ask from any government in a country which has traditionally lived on the proceeds of its gold industry, there is at all events a separate case to be made out for uranium alone, especialy as it does not follow that tax relief on this section of the industry's operations would result in a falling off in tax receipts.

Uranium as a factor in mine profits has now become pretty much stabilized in respect of any particular mine and the growth in uranium earnings can be fairly closely forecast in relation to growth in gold output. The one qualification to this at the moment arises from the fact that output from existing uranium-producing mines appears to be considerably in excess of what was originally envisaged when the contracts were first drawn up, and it was stated some little time ago that no further contracts would be awarded.

On the other hand, there are maybe as many as ten mines still to come into production over the next ten years or so, several of which, it is safe to assume, will be worthwhile uranium producers, and it might well be to everybody's advantage for some revision of existing contracts to be worked out in exchange for the eventual offer of uranium contracts to some of these prospective new mines.

Obviously, the shareholders of existing producers could scarcely be expected to approve of any revision in their very satisfactory uranium contracts unless their boards could offer them some compensating benefit. This might well take the form of a reduction in tax on uranium profits, which the government could well afford to give if it were thereby assured of additional revenue from taxes on uranium profits from mines which would not otherwise have been awarded contracts.

Costs and Labour Supply

Up to a year ago, costs had been rising steadily since the war. (The average per ton milled in 1949 was 27s., in 1957 was 45s., 4d.) In part this increase has, of course, reflected rising wages and material costs as well as the intrinsically higher cost structure of the new mines on the O.F.S. and Far West Rand, which are offset by higher average gold recoveries. The most important single factor has, however, until recently been the braking effect throughout the industry, but more noticeably on the newer mines, of the shortage of man-power.

Now however, it does seem as if, at any rate for the moment, the supply of native labour and—what is of greater importance—the supply of white miners and artisans are at any rate adequate and for the first time for many a long day, some mine managers are finding themselves in the position of being able to hire with some degree of selectivity.

Latterly, the improvement in this situation has come about through the slowing down of activity in other sectors of the economy, while earlier last year the position had been eased by the cessation of operations at one or two mines as a result of the concentration of working at others. The reduced scale of operations at the Rustenburg platinum mine has also helped and there has been a limited re-migration of miners from the Copperbelt.

Quite as important as the quantitative improvement in the labour supply has been the increase in productive efficiency. Of importance here has been the improved availability of artisans, which has enabled better dividends to be obtained from mechanization programmes.

Management efficiencies have also been rising and there is now an increasing readiness to adopt cost control and other management tools which in the past have been slow to find acceptance in the South African gold industry. Be that as it may, a number of mines have retained management consultants of late who have introduced cost control techniques which have been of great value, more especially to the marginal mines, in determining the optimum utilization of labour where the labour force has been insufficient to work the mine full out.

All this is not to say that the industry is necessarily out of the wood for good on the labour front. In the first place,

(*Continued on page* 11)

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA, LIMITED

(Incorporated in the Union of South Africa)

GOLD MINING COMPANIES' DIRECTORS' REPORTS FOR THE QUARTER ENDED 31st MARCH, 1958

(All Companies mentioned are incorporated in the Union of South Africa)

DEVELOPMENT VALUES

The development values in all these Companies' Reports represent actual results of sampling, no allowance having been made for adjustments which are necessary in estimating ore reserves.

WELKOM GOLD MINING COMPANY LIMITED

ISSUED CAPITAL (In shares of 5s. each) £3,062,500

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	246,000	241,500
Ounces fine	72,957	72,398
Yield per ton—dwt.	5.93	6.00
Cost per ounce	193s. 11d.	197s. 3d.
Revenue per ton milled	73s. 10d.	74s. 10d.
Cost per ton milled	57s. 6d.	59s. 1d.
Profit per ton milled	16s. 4d.	15s. 9d.
Uranium (Joint Production Scheme)		
Tonnage entitlement of this Company	216,854	222,698
lb. apportioned	56,292	60,578
Yield per ton on lb. apportioned	.260	.272
WORKING RESULTS		
Gold—Working revenue	£908,758	£903,794
—Working costs	707,432	713,951
—Working profit	201,326	189,843
Uranium—Working profit (estimated)	151,000	166,000
Total Working Profit	£352,326	£355,843

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to **£7,965.**

The estimated working profit for the six months ended 31st March, 1958, was **£720,620.** (31st March, 1957—**£338,103.**)

Interest charges for the six months ended 31st March, 1958 (excluding interest on uranium loans) amounted to **£85,805.** (31st March, 1957—**£71,453.**)

No taxation and no share of profit are as yet payable to the Government.

LOAN REPAYMENTS—		
Debentures		
5% Debentures of a nominal value of **£11,000** were purchased by the Company at a cost of **£10,527.**		
Uranium Loans		
Quarterly instalment comprising redemption and interest	£127,645	£127,645
CAPITAL EXPENDITURE		
Gold	189,515	221,436
Uranium	6,025	1,300
	£195,540	£222,736
Add: Contribution towards capital cost o President Steyn Uranium Plant	23,599	23,681
	219,139	246,417
Less: Recoupments from participants in the joint uranium production scheme towards the capital cost of the Welkom uranium plant	82,735	82,439
Net Total	£136,404	£163,978

DIVIDEND—Dividend No. 2 of **3d.** per share was declared payable to members registered in the books of the company on 15th April, 1958.

DEVELOPMENT		
Footage driven	15,430	16,036
Sampled		
Feet	2,830	3,195
Average gold value—dwt. per ton	17.79	37.12
Width—inches	12.88	9.95
Equivalent inch-dwt.	229	369
Payable (gold)		
Feet	1,655	2,395
Percentage	58.5	75.0
Average gold value—dwt. per ton	22.60	49.38
Average uranium oxide value—lb. per ton	1.11	2.32
Width—inches	15.24	9.52
Equivalent inch-dwt.	344	470
Equivalent inch-lb.	16.92	22.04

Development results for the quarter have been adversely affected by results from the south-western section of the mine, where a sill has been encountered; this sill splits the reef body, but is now passing into the footwall.

SHAFT SINKING—No. 1 Shaft: The deepening of this shaft was continued and advanced **111** ft. to a depth of **4,325** ft.; development of the ore-pass system is in progress.

No. 1 Vertical Ventilation Winze : The excavation for an installation of the collar has been completed and construction work is in progress.

No. 2 Shaft : Work preparatory to the deepening of this shaft was continued.

No. 3 Joint Ventilation Shaft System (for the joint account of this company, President Brand and President Steyn Gold Mining Companies).

18 ft. Diameter Ventilation Shaft : Work continued on the main ore-pass system and the excavations for airways on the **4,350** ft. level.

24 ft. Diameter Shaft : This shaft was sunk **270** ft. to its final depth of **4,490** ft. below the collar. Excavation of the main pumping layout, airways, etc., is in progress. The change-over of the headgear from sinking to production requirements has been completed and the remainder of the permanent equipment is being installed in the shaft.

SPRINGS MINES, LIMITED

ISSUED CAPITAL (In shares of 5s. each) £2,527,500

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	372,000	381,000
Ounces fine	41,469.69	42,930.74
Yield per ton—dwt.	2.23	2.25
Cost per ounce	237s. 8d.	236s. 8d.
Revenue per ton milled	27s. 9d.	28s. 1d.
Cost per ton milled	26s. 6d.	26s. 8d.
Profit per ton milled	1s. 3d.	1s. 5d.
WORKING RESULTS		
Working revenue	£515,914	£535,263
Working costs	492,750	507,999
Working Profit	£23,164	£27,264

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August 1957/January, 1958, amounted to **£4,304.**

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—Estimated liability for the three months ended 31st March, 1958—**£6,600.**

CAPITAL EXPENDITURE	Nil	Nil
DEVELOPMENT		
Total development—feet	2,529	2,097
Sampled		
Feet	2,240	1,890
Average gold value—dwt. per ton	21.95	12.60
Width—inches	12.45	14.16
Equivalent inch-dwt.	273	178
Payable		
Feet	855	510
Percentage	38.2	27.0
Average gold value—dwt. per ton	44.63	35.59
Width—inches	13.78	14.04
Equivalent inch-dwt.	615	500

PRESIDENT BRAND GOLD MINING COMPANY, LIMITED

ISSUED CAPITAL (In units of stock of 5s. each) £3,250,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	207,000	207,500
Ounces fine	168,149	156,614
Yield per ton—dwt.	14.81	15.10
Cost per ounce	87s. 8d.	89s. 9d.
Revenue per ton milled	184s. 9d.	188s. 5d.
Cost per ton milled	64s. 11d.	67s. 9d.
Profit per ton milled	119s. 10d.	120s. 8d.
Uranium (Joint Production Scheme)		
Tonnage entitlement of this company	215,604	206,424
Lb. apportioned	58,481	57,768
Yield per ton on lb. apportioned	.271	.280
WORKING RESULTS		
Gold—Working revenue	£2,097,057	£1,954,436
Working costs	737,178	702,582
—Working profit	1,359,879	1,251,854
Uranium—Working profit (estimated)	133,000	134,000
Total Working Profit	£1,492,879	£1,385,854

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £16,068.

The estimated working profit for the six months ended 31st March, 1958, was £2,896,533 (31st March, 1957—£2,537,854).

Interest charges for the six months ended 31st March, 1958, amounted to £21,340 (31st March, 1957—£21,220).

No taxation and no share of profit are as yet payable to the Government.

CAPITAL EXPENDITURE		
Gold		
(Including £30,000 in respect of underground development charged to capital. Previous quarter—£30,000)	£424,930	£340,667
Uranium		
Contribution towards capital cost of President Steyn uranium plant	23,445	21,951
Contribution towards capital cost of Welkom uranium plant	24,392	22,817
Total	£472,767	£385,435

DIVIDEND

Dividend No. 6 of 2s. 6d. per unit of stock was declared payable to members registered in the books of the company on 15th April, 1958, and to persons presenting the relevant coupons detached from stock warrants to bearer.

DEVELOPMENT		
Footage driven	12,863	16,964
Sampled		
Feet	3,670	3,730
Average gold value—dwt. per ton	152.43	204.19
Width—inches	8.98	5.33
Equivalent inch-dwt.	1,369	1,088
Payable (gold)		
Feet	3,255	3,450
Percentage	88.7	92.5
Average gold value—dwt. per ton	173.65	217.99
Average uranium oxide value—lb. per ton	2.30	3.60
Width—inches	8.83	5.36
Equivalent inch-dwt.	1,533	1,168
Equivalent inch-lb.	20.30	19.32

SHAFT SINKING—

No. 2 Ventilation Shaft was sunk 1,234 ft. to a depth of 2,709 ft. below the collar. A pump chamber was cut at 1,920 ft. below the collar.

No. 2 Sub-Vertical Twin Circular Shafts :

18 ft. Diameter Ventilation Shaft: The cutting of the first portion of the pump station on the 7,100 ft. level was completed and the development of the main ore-pass system has been started.

24 ft. Diameter Shaft: This was sunk 608 feet to a depth of 1,170 ft. below 46 level. Stations were excavated at 52, 54 and 56 levels.

No. 3 Joint Ventilation Shaft System (for the joint account of this company, President Steyn and Welkom Gold Mining Companies).

18 ft. Diameter Ventilation Shaft: Work continued on the main ore-pass system and the excavations for airways on the 4,350 ft. level.

24 ft. Diameter Shaft: This shaft was sunk 270 ft. to its final depth of 4,490 ft. below the collar. Excavation of the main pumping layout, airways, etc., is in progress. The change-over of the headgear from sinking to production requirements has been completed and the remainder of the permanent equipment is being installed in the shaft.

During March, 1958, the Basal Reef was intersected in the No. 2 Sub-vertical 24 ft. diameter shaft at a depth of 972 feet below the collar on 46 level. A complete exposure was obtained and 16 sections were sampled, all of which were payable, averaging 14.54 dwt. over 43.38 inches, equivalent to 631 inch-dwt. The uranium oxide value was 34.27 inch-lb.

BRAKPAN MINES, LIMITED

ISSUED CAPITAL (In shares of 5s. each) £1,150,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	359,000	382,000
Ounces fine	49,897.28	56,522.21
Yield per ton—dwt.	2.78	2.96
Cost per ounce	236s. 3d.	234s. 3d.
Revenue per ton milled	34s. 7d.	36s. 11d.
Cost per ton milled	32s. 10d.	34s. 8d.
Profit per ton milled	1s. 9d.	2s. 3d.

BRAKPAN MINES, LIMITED *Continued*

WORKING RESULTS		
Working revenue	£621,258	£705,653
Working costs	589,437	661,927
Working Profit	£31,821	£43,726

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £5,097.

TAXATION AND GOVERNMENT'S SHARE OF PROFIT—Estimated liability for the three months ended 31st March, 1958—£3,600.

CAPITAL EXPENDITURE	£8,600	£26,570
DEVELOPMENT		
Total development—feet	9,518	10,733
Sampled		
Feet	7,375	8,365
Average gold value—dwt. per ton	4.47	4.91
Width—inches	63.99	66.31
Equivalent inch-dwt.	286	326
Payable		
Feet	1,915	2,585
Percentage	26.0	30.9
Average gold value—dwt. per ton	13.78	10.45
Width—inches	58.77	75.82
Equivalent inch-dwt.	810	792

FREE STATE GEDULD MINES, LIMITED

ISSUED CAPITAL (In shares of 5s. each) £2,500,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	191,500	190,000
Ounces fine	138,934	134,333
Yield per ton — dwt.	14.51	14.14
Cost per ounce	110s. 6d.	112s. 2d.
Revenue per ton milled	180s. 9d.	176s. 6d.
Cost per ton milled	80s. 2d.	79s. 4d.
Profit per ton milled	100s. 7d.	97s. 2d.
WORKING RESULTS		
Working revenue	£1,730,555	£1,676,621
Working costs	767,868	753,609
Working Profit	£962,687	£923,012

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £13,650.

The estimated working profit for the six months ended 31st March, 1958, was £1,899,469. (31st March, 1957—£699,279.)

Interest charges for the six months ended 31st March, 1958, amounted to £136,792. (31st March, 1957—£224,926).

No taxation and no share of profit are as yet payable to the Government.

CAPITAL EXPENDITURE		
Total expenditure	£78,295	£78,888
Underground development charged to capital included in the above	£40,000	£47,000

DIVIDEND—Dividend No. 2 of 2s. per share was declared payable to members registered in the books of the company on 15th April, 1958, and to persons presenting the relevant coupons detached from share warrants to bearer.

DEVELOPMENT		
Footage driven	21,234	23,631
Sampled		
Feet	3,425	3,860
Average value—dwt. per ton	236.66	175.53
Width—inches	6.11	6.17
Equivalent inch-dwt.	1,446	1,083
Payable		
Feet	3,320	3,605
Percentage	96.9	93.4
Average value—dwt. per ton	242.35	185.07
Width—inches	6.14	6.23
Equivalent inch-dwt.	1,488	1,153

The results obtained in the vicinity of the individual shafts were :—

NO. 1 SHAFT AREA		
Sampled		
Feet	780	1,825
Average value—dwt. per ton	119.86	109.34
Width—inches	5.79	5.46
Equivalent inch-dwt.	694	597
Payable		
Feet	675	1,570
Percentage	86.5	86.0
Average value—dwt. per ton	133.11	123.95
Width—inches	5.89	5.47
Equivalent inch-dwt.	784	678
NO. 2 SHAFT AREA		
All samples proved payable.		
Sampled and Payable		
Feet	2,645	2,035
Average value—dwt. per ton	268.44	223.05
Width—inches	6.21	6.81
Equivalent inch-dwt.	1,667	1,519

SHAFT SINKING

No. 2 Ventilation Shaft. The shaft collar and the hoist foundations for the 18 ft. No. 2 ventilation shaft have been completed, preparatory to the commencement of sinking operations.

CAPITAL—During the quarter the issued capital of the company was increased to £2,500,000 in 10,000,000 shares of 5s. each, fully paid, as the result of the exercise of rights by Anglo American Corporation of South Africa, Limited, to subscribe for 497,346 shares, and by members to subscribe for 703,900 shares in the company's reserve capital at a price of 80s. per share. Of the latter, subscriptions were received for 520,791 shares, leaving a balance of 183,109 shares which were subscribed in terms of the underwriting agreement. The total proceeds of the issue, amounting to £4,804,984, were applied in reducing the loan facilities of £5,000,000 granted to the company by Anglo American Corporation of South Africa, Limited.

WESTERN REEFS EXPLORATION AND DEVELOPMENT COMPANY, LIMITED

ISSUED CAPITAL (In shares of 5s. each) £1,750,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	327,500	347,000
Ounces fine	76,204.92	80,429.05
Yield per ton—dwt.	4.65	4.64
Cost per ounce	204s. 11d.	197s. 4d.
Revenue per ton milled	57s. 11d.	57s. 11d.
Cost per ton milled	47s. 8d.	45s. 9d.
Profit per ton milled	10s. 3d.	12s. 2d.
Uranium		
Tons treated	635,105	633,473
Uranium oxide produced—lb.	164,466.5	165,189
Yield per ton treated—lb.	0.259	0.261
WORKING RESULTS		
Gold—Working revenue	£948,741	£1,004,423
—Working costs	780,764	793,483
—Working profit	£167,977	£210,940
Uranium and sulphuric acid—Working profit (estimated)	457,000	443,000
Total Working Profit	£624,977	£653,940

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £8,028.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—Estimated liability for the three months ended 31st March, 1958—£231,750.

URANIUM AND SULPHURIC ACID PLANT LOANS—Quarterly instalment, redemption and interest	£169,182	£169,182
CAPITAL EXPENDITURE	£13,865	£13,257
DEVELOPMENT		
Mining Lease Area (Including the Goedgenoeg area over which the Minister of Mines has agreed to grant a lease)		
Ventersdorp Contact and Elsburg Reefs :		
Footage driven	6,944	6,741
Sampled		
Feet	3,330	2,295
Average gold value—dwt. per ton	6.75	5.45
Width—inches	34.39	22.75
Equivalent inch-dwt.	232	124
Payable (gold)		
Feet	1,315	525
Percentage	39.5	22.9
Average gold value—dwt. per ton	11.55	10.73
Average uranium oxide value—lb. per ton	0.48	0.31
Width—inches	39.05	33.64
Equivalent inch-dwt.	451	361
Equivalent inch-lb.	18.65	10.46
Vaal Reef :		
Footage driven	8,978	9,043
Sampled		
Feet	4,175	3,155
Average gold value—dwt. per ton	25.83	33.76
Width—inches	13.66	12.41
Equivalent inch-dwt.	353	419
Payable (gold)		
Feet	2,775	2,380
Percentage	66.5	75.4
Average gold value—dwt. per ton	34.47	38.15
Average uranium oxide value—lb. per ton	2.64	3.43
Width—inches	14.09	13.89
Equivalent inch-dwt.	486	530
Equivalent inch-lb.	37.17	47.62
DEVELOPMENT—Outside Mining Lease Area : (Results of development on Ventersdorp Contact and Elsburg reefs on the Farm Nooitgedacht No. 53)		
Footage driven	3,692	3,810
Sampled		
Feet	2,525	2,380
Average gold value—dwt. per ton	12.82	13.85
Width—inches	23.64	27.61
Equivalent inch-dwt.	303	382
Payable (gold)		
Feet	1,485	1,505
Percentage	58.8	63.2
Average gold value—dwt. per ton	14.12	14.89
Average uranium oxide value—lb. per ton	0.41	0.53
Width—inches	32.06	37.32
Equivalent inch-dwt.	453	556
Equivalent inch-lb.	13.19	19.85

THE SOUTH AFRICAN LAND AND EXPLORATION COMPANY, LIMITED

ISSUED CAPITAL (In shares of 3s. 6d. each) £433,125

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	256,000	260,000
Ounces fine	52,724.62	52,985.96
Yield per ton—dwt.	4.12	4.08
Cost per ounce	193s. 0d.	191s. 4d.
Revenue per ton milled	51s. 3d.	50s. 10d.
Cost per ton milled	39s. 9d.	39s. 0d.
Profit per ton milled	11s. 6d.	11s. 10d.

THE SOUTH AFRICAN LAND AND EXPLORATION COMPANY, LIMITED *Continued*

WORKING RESULTS		
Working revenue	£655,990	£660,568
Working costs	508,727	506,922
Working profit	£147,263	£153,646

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £5,897.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—Estimated liability for the three months ended 31st March, 1958 — £57,600.

CAPITAL EXPENDITURE	£57,765	£83,196
DEVELOPMENT		
Mining Lease Area		
Total Development—feet	5,336	5,584
Sampled		
Feet	4,240	4,050
Average gold value—dwt. per ton	7.56	9.44
Width—inches	25.25	28.60
Equivalent inch-dwt.	191	270
Payable		
Feet	1,500	1,790
Percentage	35.4	44.2
Average gold value—dwt. per ton	15.34	16.71
Width—inches	29.47	32.60
Equivalent inch-dwt.	452	545
Outside Mining Lease Area (Withok No. 7)		
Total Development—feet	5,983	5,450
Sampled		
Feet	880	900
Average gold value—dwt. per ton	26.69	15.71
Width—inches	18.11	18.09
Equivalent inch-dwt.	483	284
Payable		
Feet	635	555
Percentage	72.2	61.7
Average gold value—dwt. per ton	33.93	25.96
Width—inches	18.88	16.09
Equivalent inch-dwt.	641	418

DAGGAFONTEIN MINES, LIMITED

ISSUED CAPITAL (In shares of 5s. each) £1,750,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	652,000	667,000
Ounces fine	137,666.87	142,345.80
Yield per ton—dwt.	4.22	4.27
Cost per ounce	146s. 2d.	143s. 10d.
Revenue per ton milled	52s. 7d.	53s. 4d.
Cost per ton milled	30s. 10d.	30s. 8d.
Profit per ton milled	21s. 9d.	22s. 8d
Uranium		
Tons treated	361,961	378,739
Uranium oxide produced—lb.	136,354.5	158,866
Yield per ton treated—lb.	0.377	0.419
WORKING RESULTS		
Gold—Working revenue	£1,714,012	£1,778,586
—Working costs	1,006,026	1,023,761
—Working profit	£707,986	£754,825
Uranium and Sulphuric Acid—Working profit (estimated)	404,000	472,000
Total Working Profit	£1,111,986	£1,226,825

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £14,543.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—Estimated liability for the three months ended 31st March, 1958—£602,600.

URANIUM AND SULPHURIC ACID PLANT LOANS Quarterly instalment, redemption and interest	£140,776	£140,776
CAPITAL EXPENDITURE	Nil	£32,557
DEVELOPMENT		
Main Reef Leader :		
Footage driven	2,418	1,752
Sampled		
Feet	1,770	1,145
Average gold value—dwt. per ton	11.30	16.24
Width—inches	17.34	10.61
Equivalent inch-dwt.	196	172
Payable		
Feet	760	440
Percentage	42.9	38.4
Average gold value—dwt. per ton	16.02	24.81
Width—inches	24.51	15.16
Equivalent inch-dwt.	393	376
Kimberley Reef :		
Footage driven	4,140	5,181
Sampled		
Feet	3,710	4,790
Average gold value—dwt. per ton	8.32	3.63
Width—inches	33.36	36.02
Equivalent inch-dwt.	278	131
Payable (gold)		
Feet	1,755	1,220
Percentage	47.3	25.5
Average gold value—dwt. per ton	19.26	9.51
Average uranium oxide value—lb. per ton	1.05	0.47
Width—inches	26.55	37.30
Equivalent inch-dwt.	511	355
Equivalent inch-lb.	27.75	17.52

WESTERN HOLDINGS LIMITED

ISSUED CAPITAL (In shares of 5s. each) **£1,874,094**

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	281,000	293,000
Ounces fine	150,864	150,267
Yield per ton—dwt.	10.74	10.26
Cost per ounce	103. 0d.	103. 9d.
Revenue per ton milled	133s. 9d.	128s. 0d.
Cost per ton milled	55s. 3d.	53s. 3d.
Profit per ton milled	78s. 6d.	74s. 9d.
WORKING RESULTS		
Working revenue	£1,879,603	£1,874,978
Working costs	776,825	779,527
Working Profit	£1,102,778	£1,095,451

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to **£15,414.**

The estimated working profit for the six months ended 31st March, 1958, was **£2,214,516.** (31st March, 1957—**£1,593,697**).

Interest charges for the six months ended 31st March, 1958, amounted to **£25,845.** (31st March, 1957—**£43,160.**)

No taxation and no share of profit are as yet payable to the Government.

CAPITAL EXPENDITURE	£424,550	£372,870
DIVIDEND—Dividend No. 6 of **3s.** per share was declared payable to members registered in the books of the company on 15th April, 1958.		
DEVELOPMENT		
Footage driven	19,967	18,241
Sampled		
Feet	3,265	3,740
Average value—dwt. per ton	185.34	192.69
Width—inches	5.59	5.61
Equivalent inch-dwt.	1,036	1,081
Payable		
Feet	2,950	3,435
Percentage	90.4	91.8
Average value—dwt. per ton	204.75	209.87
Width—inches	5.55	5.57
Equivalent inch-dwt.	1,136	1,169

SHAFT SINKING—No. 3 Circular Shaft System :—

18ft. Diameter Ventilation Shaft: Work continued on the excavations for the main ore-pass system, pump chambers, etc., and cutting of the conveyor belt crosscut was completed.

24 ft. Diameter Main Shaft: This shaft was sunk **416** ft. to its final depth of **3,864** ft. below the collar. A station was cut on the **3,625** level. Excavation of the main pump station, shaft loading station, etc., was completed and the installation of permanent equipment in the shaft was started.

PRESIDENT STEYN GOLD MINING COMPANY, LIMITED

ISSUED CAPITAL (In shares of 5s. each) **£3,250,000**

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	277,000	277,000
Ounces fine	106,264	105,630
Yield per ton—dwt.	7.67	7.63
Cost per ounce	142s. 8d.	141s. 8d.
Revenue per ton milled	95s. 7d.	95s. 2d.
Cost per ton milled	54s. 9d.	54s. 0d.
Profit per ton milled	40s. 10d.	41s. 2d.
Uranium (Joint Production Scheme)		
Tonnage entitlement of this Company	216,855	222,698
Lb. apportioned	64,067	64,461
Yield per ton on lb. apportioned	.295	.289
WORKING RESULTS		
Gold—Working revenue	£1,323,733	£1,318,570
—Working costs	758,012	748,199
—Working profit	565,721	570,371
Uranium—Working profit (estimated)	169,000	178,000
Total Working Profit	£734,721	£748,371

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to **£9,721.**

The estimated working profit for the six months ended 31st March, 1958, was **£1,499,649.** (31st March, 1957—**£1,585,021.**)

Interest charges for the six months ended 31st March, 1958 (excluding interest on uranium loans) amounted to **£73,319.** (31st March, 1957—**£86,531.**)

No taxation and no share of profit are as yet payable to the Government.

URANIUM LOANS		
Quarterly instalment, comprising redemption and interest	£122,887	£122,887
CAPITAL EXPENDITURE		
Gold	£63,613	£44,172
Uranium	5,368	4,256
	68,981	48,428
Add: Contribution towards capital cost of Welkom uranium plant	24,553	24,616
	93,534	73,044
Less: Recoupments from participants in the Joint Uranium Production Scheme towards the capital cost of the President Steyn uranium plant	79,522	79,308
Net Recoupment		£6,264
Net Total Expenditure	£14,012	

PRESIDENT STEYN GOLD MINING COMPANY, LIMITED *Continued*

DIVIDEND—Dividend No. **6** of **1s. 3d.** per share was declared payable to members registered in the books of the company on 15th April, 1958, and to persons presenting the relevant coupons detached from share warrants to bearer.

DEVELOPMENT		
Footage driven	14,342	16,742
BASAL REEF		
Sampled		
Feet	3,540	3,310
Average gold value—dwt. per ton	39.51	39.37
Width—inches	10.99	11.54
Equivalent inch-dwt.	434	454
Payable (gold)		
Feet	3,065	2,945
Percentage	86.6	89.0
Average gold value—dwt. per ton	42.78	43.16
Average uranium oxide value—lb. per ton	1.65	1.36
Width—inches	11.35	11.54
Equivalent inch-dwt.	486	498
Equivalent inch-lb.	18.69	15.73
LEADER REEF		
Sampled		
Feet	545	1,150
Average gold value—dwt. per ton	2.90	1.56
Width—inches	66.60	59.10
Equivalent inch-dwt.	193	92
Payable (gold)		
Feet	95	70
Percentage	17.4	6.1
Average gold value—dwt. per ton	6.92	6.03
Average uranium oxide value—lb. per ton	1.14	0.83
Width—inches	74.74	66.36
Equivalent inch-dwt.	517	400
Equivalent inch-lb.	85.05	54.75

SHAFT SINKING—No. 3 Joint Ventilation Shaft System (for the joint account of this company, President Brand and Welkom Gold Mining Companies) :

18 ft. Diameter Ventilation Shaft: Work continued on the main ore-pass system and the excavations for airways on the **4,350** ft. level.

24 ft. Diameter Shaft: This shaft was sunk **270** feet to its final depth of **4,430** ft. below the collar. Excavation of the main pumping layout, airways, etc., is in progress. The change-over of the headgear from sinking to production requirements has been completed and the remainder of the permanent equipment is being installed in the shaft.

VAAL REEFS EXPLORATION AND MINING COMPANY, LIMITED

ISSUED CAPITAL (In shares of 5s. each) **£2,625,000**

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	199,500	201,500
Ounces fine	89,767.14	91,550.67
Yield per ton—dwt.	9.00	9.09
Cost per ounce	134s. 10d.	130s. 8d.
Revenue per ton milled	112s. 0d.	113s. 4d.
Cost per ton milled	60s. 8d.	59s. 5d.
Profit per ton milled	51s. 4d.	53s. 11d.
Uranium		
Tons treated	194,043	207,675
Uranium oxide produced—lb.	127,616	136,996
Yield per ton treated—lb.	0.658	0.660
WORKING RESULTS		
Gold—Working revenue	£1,117,104	£1,141,668
—Working costs	605,068	598,191
—Working profit	£512,036	£543,477
Uranium—Working profit (estimated)	359,000	377,000
Total Working Profit	£871,036	£920,477

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to **£9,290.**

Interest charges (excluding interest on Uranium loans) **£3,125** (**£13,627**).

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—No taxation and no share of profits are as yet payable to the Government.

URANIUM PLANT LOANS		
Quarterly instalment, redemption and interest	£70,158	£70,158
CAPITAL EXPENDITURE		
Gold	£198,429	£174,575
Underground development charged to gold capital expenditure and included in the above	(£88,000)	(£92,000)
Uranium	£543	£4,309
DEVELOPMENT		
Total development—feet	24,602	24,597
Sampled		
Feet	8,965	7,530
Average gold value—dwt. per ton	77.28	61.15
Width—inches	5.15	5.92
Equivalent inch-dwt.	398	362
Payable (gold)		
Feet	6,760	5,240
Percentage	75.4	69.6
Average gold value—dwt. per ton	93.08	85.31
Average uranium oxide value—lb. per ton	6.97	6.93
Width—inches	5.35	5.65
Equivalent inch-dwt.	498	482
Equivalent inch-lb.	37.28	39.16

CAPITAL—Anglo American Corporation of South Africa, Limited, exercised its right at 1st January, 1958, to subscribe for 500,000 shares of 5s. each in the capital of the company at a price of 35s. per share payable in full in cash. The issued capital of the company was accordingly increased from £2,500,000 to £2,625,000 in 10,500,000 shares of 5s. each, fully paid.

WESTERN DEEP LEVELS, LIMITED

ISSUED CAPITAL (£850,000 in 850,000 " A " shares of £1 each.)

SHAFT SINKING—No. 2 SHAFT SYSTEM

No. 2 Main Shaft : During the quarter, satisfactory progress was made with the construction of the concrete headgear and the erection of the sinking hoists. The shaft was deepened 87 ft. by the civil contractors to a depth of 145 ft.

No. 2 Ventilation Shaft : With the completion of the headgear, the collar excavations and the erection of sinking hoists, sinking operations began in February 1958. The shaft was sunk 353 ft. to a depth of 477 ft.; in addition, a small temporary pump chamber was cut.

NO. 3. SHAFT SYSTEM

No. 3 Main Shaft : Work continued on the shaft collar and the concrete headgear and the shaft was deepened 51 feet by the civil contractors to a depth of 177 ft. Hoists for sinking the shaft were commissioned.

No. 3 Ventilation Shaft : Sinking operations at this shaft started early in January, 1958. The shaft was advanced 992 ft. to a depth of 1,099 ft. and, in addition 171 ft. of development were done in cutting two temporary pump chambers.

BUILDINGS AND PLANT

The building of the winder and compressor houses was completed. Two 5,000 c.f.m. compressors were brought into commission at the No. 2 Shaft; these, with the two similar units brought into use in the previous quarter, provide 20,000 c.f.m. for sinking operations.

At No. 2 Shaft, the shaft offices, the engineer's offices and workshops were completed.

GENERAL

Power Supply : The permanent E.S.C. substations and consumer switch houses were completed.

Water Supply : One 250,000 gallon reservoir has been completed and good progress was made with the laying of a 10-in. water supply main from Blyvooruitzicht.

Roads : Good progress has been made with the construction of the permanent roads on the mine property.

EUROPEAN HOUSING

A total of 120 houses have been built in Carletonville township; of this number 56 were completed and occupied during the quarter.

NATIVE COMPOUNDS

Extensions were made to the temporary compounds at both shaft systems and accommodation is now available for 2,000 Africans.

EAST DAGGAFONTEIN MINES, LIMITED

ISSUED CAPITAL (In shares of 10s. each) £1,865,000

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	265,500	276,000
Ounces fine	44,129.55	45,985.03
Yield per ton—dwt.	3.32	3.33
Cost per ounce	213s. 7d.	208s. 6d.
Revenue per ton milled	41s. 5d.	41s. 7d.
Cost per ton milled	35s. 6d.	34s. 9d.
Profit per ton milled	5s. 11d.	6s. 10d.
WORKING RESULTS		
Working revenue	£549,483	£573,688
Working costs	471,181	479,437
Working Profit	£78,302	£94,251

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £4,669.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS—Estimated liability for the three months ended 31st March 1958—£33,100.

CAPITAL EXPENDITURE	Nil	£7,388
DEVELOPMENT		
Main Reef Leader:		
Footage driven	1,443	1,778
Sampled		
Feet	1,130	1,510
Average gold value—dwt. per ton	10.97	10.89
Width—inches	8.34	9.23
Equivalent inch-dwt.	91	101
Payable		
Feet	325	430
Percentage	28.8	28.5
Average gold value—dwt. per ton	20.33	23.85
Width—inches	9.26	9.19
Equivalent inch-dwt.	188	219
Kimberley Reef :		
Footage driven	5,097	6,104
Sampled		
Feet	4,050	4,155
Average gold value—dwt. per ton	24.15	43.16
Width—inches	3.94	4.78
Equivalent inch-dwt.	95	206
Payable		
Feet	880	1,630
Percentage	21.7	39.2
Average gold value—dwt. per ton	54.49	72.00
Width—inches	5.94	6.50
Equivalent inch-dwt.	324	468

LORAINE GOLD MINES, LIMITED

ISSUED CAPITAL (In shares of 10s. each) £8,226,686

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold		
Tons milled	192,000	184,000
Ounces fine	35,463	36,144
Yield per ton—dwt.	3.69	3.93
Cost per ounce	285s. 8d.	270s. 6d.
Revenue per ton milled	46s. 0d.	49s. 0d.
Cost per ton milled	52s. 9d.	53s. 2d.
Loss per ton milled	6s. 9d.	4s. 2d.
Uranium (Joint Production Scheme)		
Tonnage entitlement of this Company	162,329	162,954
Lb. apportioned	40,179	38,594
Yield per ton on lb. apportioned	.248	.237
WORKING RESULTS		
Gold—Working revenue	£441,638	£450,727
—Working costs	506,539	488,909
—Working loss	64,901	38,182
Uranium—Working profit (estimated)	91,000	90,000
Total Working Profit	£26,099	£51,818

In addition, revenue received in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958, amounted to £3,479.

The estimated working profit for the six months ended 31st March, 1958, was £81,558. (31st March, 1957—£105,225.)

Interest charges for the six months ended 31st March, 1958, amounted to £16,399. (31st March, 1957—£28,317).

No taxation and no share of profit are as yet payable to the Government.

CAPITAL EXPENDITURE		
Gold (including £68,000 in respect of underground development charged to capital. Previous quarter — £79,000)	£83,870	£85,048
Uranium		
Contribution towards capital cost of President Steyn uranium plant	17,661	17,328
Contribution towards capital cost of Welkom uranium plant	18,373	18,012
Total	£119,904	£120,388
DEVELOPMENT		
Footage driven	14,270	15,876
BASAL REEF :		
Sampled		
Feet	1,335	2,355
Average gold value—dwt. per ton	33.56	27.08
Width—inches	4.28	4.59
Equivalent inch-dwt.	144	124
Payable (gold)		
Feet	480	615
Percentage	36.0	26.1
Average gold value—dwt. per ton	53.01	48.28
Average uranium oxide value—lb. per ton	3.71	3.05
Width—inches	4.89	5.55
Equivalent inch-dwt.	259	268
Equivalent inch-lb.	18.12	16.92
" B " REEF :		
Sampled		
Feet	2,760	3,220
Average gold value—dwt. per ton	9.74	5.65
Width—inches	11.84	22.74
Equivalent inch-dwt.	115	128
Payable (gold)		
Feet	335	630
Percentage	12.1	19.6
Average gold value—dwt. per ton	38.88	16.64
Average uranium oxide value—lb. per ton	1.11	0.77
Width—inches	18.25	27.96
Equivalent inch-dwt.	710	465
Equivalent inch-lb.	20.16	21.57
RAINBOW REEF :		
Sampled		
Feet	130	385
Average gold value—dwt. per ton	7.31	4.73
Width—inches	35.54	39.43
Equivalent inch-dwt.	260	187
Payable (gold)		
Feet	40	160
Percentage	30.8	41.6
Average gold value—dwt. per ton	13.65	6.18
Average uranium oxide value—lb. per ton	0.47	0.47
Width—inches	53.13	47.97
Equivalent inch-dwt.	725	296
Equivalent inch-lb.	25.07	22.67

OTHER REEFS :

No development was accomplished on other reefs.

London Office:
40 Holborn Viaduct, E.C.1.
17th April, 1958.

For and on behalf of
ANGLO AMERICAN CORPORATION OF SOUTH AFRICA LIMITED.
R. V. PRITCHARD, Joint London Secretary.

GENERAL MINING & FINANCE CORPORATION, LIMITED

(Incorporated in the Union of South Africa)

GOLD MINING COMPANIES' DIRECTORS' REPORTS FOR THE QUARTER ENDED 31st MARCH, 1958

All companies mentioned are incorporated in the Union of South Africa

WEST RAND CONSOLIDATED MINES, LTD.

WORKING RESULTS	Gold Section	Uranium Section	Total
Ore Milled—tons	361,000	224,000	585,000
Uranium Output—lb.	—	310,488	310,488
Uranium Yield (ounces per ton)	—	22.18	22.18
Uranium Yield (lb. per ton)	—	1.386	1.386
Gold produced—ounces fine	51,096	6,735	57,831
Gold produced—recovery per ton—dwt.	2.831	0.601	1.977
WORKING REVENUE AND EXPENDITURE	£	£	£
Net Profit from Uranium, being Gross Revenue less recovery costs (subject to adjustment)	—	996,000	996,000
Revenue from Gold	635,004	83,686	718,690
TOTAL WORKING REVENUE	635,004	1,079,686	1,714,690
Working Costs (excluding items deducted from Uranium Revenue)	670,524	442,153	1,112,677
WORKING PROFIT/LOSS*	35,520*	637,533	602,013
Sundry Revenue	31,340	281	31,621
TOTAL PROFIT	4,180*	637,814	633,634
	s. d.	s. d.	s. d.
Working Revenue per ton milled	35 2	96 5	58 7
Working Costs per ton milled	37 2	39 6	38 0
Working Profit/Loss* per ton milled	2 0*	56 11	20 7

Additional revenue received during the quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958—£5,771.

FIRE AT MINE.—The reduction in tonnage of ore treated in the Gold Section and the reduced profit therefrom, are the result of the fire which destroyed the extractor house at the North Reduction Plant on December 30th. Normal operations were resumed on January 22nd. The loss of profits is fully covered by insurance.

Provision for Taxation	£310,000
CAPITAL EXPENDITURE	
(a) Normal (excluding Uranium Plant)	£10,377
(b) Uranium Plant	Nil
TOTAL	£10,377
Seventeenth quarterly instalment towards repayment of Uranium Loan Funds (made up of Capital £58,855 and Interest £15,617) (Balance of Loan Outstanding at 31st March, 1958, £1,525,944.)	£74,472

DEVELOPMENT.—The total footage advanced during the quarter was 25,056 feet, of which 12,732 feet were accomplished on the Main, Livingstone and Kimberley Reefs Series and 12,324 feet on the Bird Reef Series, giving the following results :—

GOLD SECTION.—Main Livingstone and Kimberley Reefs Series.

	Footage Payable	Percentage Payable	Reef Channel width—in.	Av. value dwt.	In./ dwt.
Main Reef	1,790	81.7	43.6	8.9	386
South Reef	1,150	84.9	22.9	9.9	227
Livingstone Reef	1,020	77.9	54.0	8.4	454
Kimberley Reef	—	—	—	—	—
TOTALS	3,960	81.6	40.3	8.9	358

URANIUM SECTION.—Bird Reef Series.

	Footage Payable	Per-centage Payable*	Channel Width/ Inches	GOLD Value dwt.	Inch/ dwt.	URANIUM Value oz.	lb.	In./ oz.
White Reef	70	42.4	8.0	24.0	192	56.9	3.556	455
Monarch Reef	2,365	87.3	12.7	3.7	47	91.3	5.706	1,157
Upper Monarch Reef—Zone 2	1,965	75.7	29.6	1.0	28	40.8	2,550	1,207
Upper Monarch Reef—Zone 4	905	75.1	29.0	1.1	33	38.9	2.431	1,128
Other Reefs	70	20.9	10.0	1.8	18	52.7	3.294	527
TOTALS	5,375	76.7	21.5	1.8	39	53.6	3.350	1,153

* The percentage payable is determined on a combined Uranium/Gold content.

The above values represent actual results of sampling, no allowance having been made for any reductions which, subsequently, may be considered necessary when compiling the Ore Reserve.

ELLATON GOLD MINING CO. LTD.

Ore milled (tons) 94,000 Gold Recovered (oz.) 21,645

Yield per ton (dwt.) 4.605

	£	Per ton milled	Per oz. fine
Working Revenue	269,423	57/3.9	248/11.4
Working Cost	178,611	38/0.0	165/0.5
WORKING PROFIT	90,812	19/3.9	83/10.9

URANIUM :		
Tons treated	88,784	
Output (lb.)	27,575.5	
Yield per ton (lb.)	0.3106	
Working Profit (subject to adjustment and after deduction of amounts paid in respect of the use of the Stilfontein Plant)	50,000	
TOTAL WORKING PROFIT	£140,812	
Additional revenue in respect of Gold sold to the Reserve Bank for the period August, 1957 to January, 1958, amounted to £2,395		£2,395
CAPITAL EXPENDITURE (excluding Uranium Plant)		—
RECOUPMENT DURING THE QUARTER		809
LOAN REPAYMENTS (Capital and Interest) :		
Uranium	£16,112	
Other	157,124	
		173,236
		£172,427
Capital Expenditure on the Uranium Plant		Nil
Amortization contributions received from other participants in the Uranium Joint Pumping Scheme		£12,526

DEVELOPMENT.—The total footage advanced during the quarter was 2,785 ft. Of this total 1,040 ft. were on reef and 985 ft. were sampled, giving the following results :

	Footage Payable in terms of Gold content	Per Cent. Payable	Reef Channel Width in.	Gold Av. value dwt./ ton	Gold in./ dwt.	Uranium Av. value lb./ ton	Uranium in./ lb.
Vaal Reef	560	70.0	19.7	30.3	596	1.753	34.53
Leader Reef	185	100.0	73.3	4.5	330	0.386	28.32
Total	745	75.6	33.0	16.1	530	1.000	32.99

SOUTH ROODEPOORT MAIN REEF AREAS LTD.

Ore milled (tons) 87,000 Gold produced, oz. fine, 20,620

Recovery per ton, dwt. 4.74

WORKING REVENUE AND EXPENDITURE	£	Per ton milled s. d.	Per oz. fine s. d.
Working Revenue	256,235	58 11	248 6
Working Costs	184,231	42 4	178 8
WORKING PROFIT	72,004	16 7	69 10
Sundry Revenue	2,491		
TOTAL PROFIT	£74,495		
Additional Gold revenue received during the quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958			£2,028
Estimated Taxation			£30,000
Capital Expenditure			£4,598

DEVELOPMENT :

Total Footage	Footage sampled	Footage payable	Percentage payable	Value dwt./ton	Width in.	Inch/ dwt.
7,008	3,700	1,285	34.7	10.4	26	270

The above values represent actual results of sampling, no allowance having been made for any reduction which, subsequently, may be considered necessary when compiling the Ore Reserve.

BUFFELSFONTEIN GOLD MINING CO. LTD.

Ore milled (tons) 321,000 Gold Recovered (oz.) 106,477
Yield per ton (dwt.) 6.513

	£	Per ton milled	Per oz. fine
GOLD			
Working Revenue	1,326,267	82/7.6	249/1.4
Working Cost	796,013	49/7.1	149/6.2
WORKING PROFIT	530,254	33/0.5	99/7.2
URANIUM :			
Tons treated from Current Slimes		315,000	
Tons treated from Surface Accumulations		90,000	
Total Tons treated		405,000	
Output (lb.)		164,062	
Yield per Ton (lb.)		0.4051	
WORKING PROFIT (subject to adjustment)	435,000		
ACID :			
WORKING PROFIT	20,000		
TOTAL WORKING PROFIT	£985,254		

Additional revenue in respect of Gold sold to the Reserve Bank for the period August, 1957 to January 1958, amounted to £10,800

CAPITAL EXPENDITURE (excluding Uranium, Pyrite and Acid Plants) £394,763

LOAN REPAYMENTS (Capital and Interest)

Uranium	£85,942	
Acid	—	
Other	—	
		85,942
		£480,705

Capital Expenditure on the Uranium, Pyrite and Acid Plants, ... £603,868

DEVELOPMENT.—The total footage advanced during the Quarter was 27,405 ft. Of this total 6,042 ft. were on reef and 5,895 ft. were sampled, giving the following results :—

	Footage Payable in terms of Gold content	Per Cent Payable	Reef Channel Width In.	Gold Av. value dwt./ ton	Gold Av. value in./ dwt.	Uranium Av. value lb./ ton	Uranium Av. value in./ lb.
Vaal Reef	5,550	94.1	39.6	14.19	562	0.890	35.26

REDUCTION PLANT.—Work on the extensions to the Reduction Plant is nearing completion.

URANIUM, PYRITE AND ACID PLANTS.—All sections of the plant operated satisfactorily during the Quarter.

PIONEER VENTILATION SHAFT.—The construction of the concrete headgear, installation of the new 5,200 H.P. Winder and the provision of underground loading facilities to enable the hoisting capacity of the Pioneer Shaft system to be increased are proceeding satisfactorily.

STILFONTEIN GOLD MINING CO. LTD.

Ore milled (tons) 325,000 Gold recovered (oz.) 161,290
Yield per ton (dwt.) 9.926

	£	Per ton milled	Per oz. fine
GOLD			
Working Revenue	2,009,659	123/8.1	249/2.4
Working Cost	883,853	54/4.7	109/7.2
WORKING PROFIT	1,125,806	69/3.4	139/7.2
URANIUM :			
Tons treated		314,000	
Output (lb.)		92,614.5	
Yield per ton (lb.)		0.2950	
Working Profit (subject to adjustment)	224,000		
ACID :			
Working Profit	41,000		
TOTAL WORKING PROFIT	£1,390,806		

Additional revenue in respect of gold sold to the Reserve Bank for the period August, 1957, to January, 1958, amounted to £16,332

CAPITAL EXPENDITURE (excluding Uranium and Acid Plants) .. £479,773

LOAN REPAYMENTS (Capital & Interest) :

Uranium	130,138	
Acid	26,084	
Other	9,500	
		165,722
		£645,495

Capital Expenditure on the Uranium and Acid Plants £4,277
Amortization contributions received from other participants in the Uranium Joint Production Scheme £59,613

DEVELOPMENT.—The total footage advanced for the Quarter was 16,012 ft. Of this total 5,633 ft. were on reef and 4,480 ft. were sampled, giving the following results :—

	Footage Payable in terms of Gold content	Per Cent. Payable	Reef Channel Width In.	Gold Av. value dwt./ ton	Gold Av. value in./ dwt.	Uranium Av. value lb. / ton	Uranium Av. value in./ lb.
Vaal Reef	3,715	82.9	4.3	86.1	370	3.16	13.57

SHAFT SINKING.—The Margaret Shaft was sunk a further 276 ft. to a depth of 4,222 ft.
The cutting of Stations, Loading Bins and Pump Stations has commenced.

REDUCTION PLANT.—The work on extensions to the Reduction Plant to a nominal capacity of 156,000 tons per month is proceeding satisfactorily.

KOEPE WINDER.—The housing for the Koepe Hoist at the Margaret Shaft is nearing completion and preparations for the installation of the Winder have commenced.

MAIN OFFICES.—Satisfactory progress has been made in the construction of the permanent Main Offices.

the industry's labour requirements are not yet at their peak, and, in the event of an increase in the gold price, are probably a long way from being at their peak. Alternatively, if by the autumn recovery proves to be on the way in the States. next year may well find South African secondary industries again diverting labour from gold.

Capital Costs

While the cost of mining supplies and equipment have not declined over the last year, the rate of increase is certainly less —more particularly so in the case of capital equipment. This means that developing and expanding mines now have a better chance of operating within their original budget estimates, whereas in earlier years spiralling costs frequently found budgets being overspent to the point where additional capital had to be found to bring the mine into production.

The uncertainties inherent in the early stages of the development of a new mine must always be considerable but, once costs have stabilized, the psychological benefits of being able to work to budget (short of any major uncovenanted costs) must be considerable both for managements and for shareholders. This, coupled with the fact that there is obviously a lot of re-thinking going on regarding the techniques of financial control, is likely to be of particular significance in connection with some of the new mines which have yet to be financed.

Future Capital Requirements

Despite the better outlook for the established gold mines, the finding of new capital is not at the moment an easy matter, as has been shown by experience in financing F.S. Saaiplaas. Counting Western Deep Levels there are currently four mines on which shaft sinking has commenced but which have yet to be brought into production, and in due course we must expect to see another four or more under way in the Bethel area and the Klerksdorp field as well as perhaps north of F.S. Saaiplaas. (This, of course, takes no account of the active prospecting going on in the Ladybrand-Clocolan area near the Basutoland border). This could mean that over £80,000,000 might have to be found over, say, the next ten years. Even without any rise in the gold price it is pertinent to consider where this money is going to come from.

It would certainly be in line with the industry's desire to see Kaffirs attain a less speculative reputation if the groups were to endeavour to finance, to a greater extent than in the past, the early development stages of a new mine from within their own resources. By deferring the first public issue until much nearer the commencement of milling it should also be possible to keep down the total of equity capital as the earlier financing from within the group would presumably have been at any rate in part by debentures and loan stock. However, just how far the groups can jointly or severally ease the problem of fund-raising for the future and add to the investors' security must depend on two factors. First, how rapidly it is considered necessary to set to work with these new properties and secondly, on the extent to which the groups, by making loan capital available, are depressing their own earning power and dividend prospect.

Looking back over the development of the O.F.S. field, which is now happily in large measure completed, many people would agree that the tempo of development placed an undue strain both on group managements and on available new capital. Thus, it might well be that by taking things more slowly in the future, the very substantial profits which are now flowing in from the O.F.S., Klerksdorp and Far West Rand fields will enable the industry, to a greater extent than in the past, to find from within itself the resources for its further expansion.

Anglo American Quarterlies

We turn now to the results from the individual mines in the first quarter of the year. These can best be described as mixed—some good, some not so good, and a great many indifferent.

Among the better returns was that from President Brand (Anglo American) where development results were superior to any announced since December, 1956. Payability was down to 89 per cent against 91 per cent last quarter, but values at 1,533 in. dwt. compared with 1,168 in. dwt. Without a breakdown of results at the individual shafts, however, it is impossible to say whether higher values are being attained overall, or whether the upturn is due to increased development at the No. 1 shaft, where values are generally better than at No. 2. A reef intersection of 631 in. dwt. attained in

(*Continued on page* 13)

UNION CORPORATION, LIMITED.

(Incorporated in the Union of South Africa)

Directors' Reports of Gold Mining Companies Incorporated in the Union of South Africa, for Quarter ended 31st March, 1958.

London Office: Princes House, 95, Gresham Street, London, E.C.2.

EAST GEDULD MINES, LTD.

ISSUED CAPITAL .... £1,800,000 STOCK IN UNITS OF 4s. EACH

Tons Milled .. 368,000 — Gold Produced (in oz. fine) .. 113,162
Yield per Ton Milled (dwt.) .. 6.15

		Per Ton Milled s. d.
Working Revenue	£1,409,231	76 7
Working Costs	645,992	35 1
WORKING PROFIT	763,239	41 6
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	11,088	
	774,327	
Sundry Revenue less Sundry Expenditure	12,952	
TOTAL PROFIT (subject to Taxation and Government's share)	£787,279	
Estimated Taxation and Government's share of profit	£413,700	
Capital Expenditure	£70	

PAYABLE DEVELOPMENT

DEVELOPMENT

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Main Reef	1,071	745	395	53	11.2	22	246

THE GROOTVLEI PROPRIETARY MINES, LTD.

ISSUED CAPITAL .... £2,859,704 STOCK IN UNITS OF 5s. EACH

Tons Milled .. 570,000 — Gold Produced (in oz. fine) .. 121,515
Yield per Ton Milled (dwt.) .. 4.26

		Per Ton Milled s. d.
Working Revenue	£1,511,812	53 0
Working Costs	894,050	31 4
WORKING PROFIT	617,762	21 8
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	12,924	
	630,686	
Sundry Revenue less Sundry Expenditure	12,278	
TOTAL PROFIT (subject to Taxation and Government's share)	£642,964	
Estimated Taxation and Government's share of profit	£320,900	
Capital Expenditure	£ Nil	

PAYABLE DEVELOPMENT

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Main Reef	4,446	4,020	1,375	34	20.4	9	184
Kimberley Reef	240	140	140	100	26.9	9	242

VAN DYK CONSOLIDATED MINES, LTD.

ISSUED CAPITAL .... £2,489,400 IN SHARES OF 9s. EACH

Tons Milled .. 224,000 — Gold Produced (in oz. fine) .. 39,872
Yield per Ton Milled (dwt.) .. 3.56

		Per Ton Milled s. d.
Working Revenue	£496,469	44 4
Working Costs	432,557	38 7
WORKING PROFIT	63,912	5 9
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	3,851	
	67,763	
Sundry Revenue less Sundry Expenditure	6,309	
TOTAL PROFIT (subject to Taxation and Government's share)	£74,072	
Estimated Taxation and Government's share of profit	£ Nil	
Capital Expenditure	£ Nil	

PAYABLE DEVELOPMENT

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Main Reef—all shafts	2,570	1,690	450	27	8.5	30	254
No. 5 Shaft area included above	980	600	305	51	9.2	33	302
Kimberley Reef	1,815	740	70	9	4.9	71	347

GEDULD PROPRIETARY MINES, LTD.

ISSUED CAPITAL .... £1,460,857 IN SHARES OF £1 EACH

Tons Milled .. 243,000 — Gold Produced (in oz fine) .. 38,360
Yield per Ton Milled (dwt.) .. 3.16

		Per Ton Milled s. d.
Working Revenue	£478,337	39 4
Working Costs	448,075	36 10
WORKING PROFIT	30,262	2 6
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	4,196	
	34,458	
Sundry Revenue less Sundry Expenditure	7,958	
TOTAL PROFIT (subject to Taxation)	£42,416	
Estimated Taxation	£3,300	
Capital Expenditure	£ Nil	

PAYABLE DEVELOPMENT

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Black Reef	2,035	1,990	490	25	3.5	52	182

ST. HELENA GOLD MINES, LTD.

ISSUED CAPITAL .... £4,812,500 IN SHARES OF 10s. EACH

Tons Milled .. 339,000 — Gold Produced (in oz. fine) .. 100,339
Yield per Ton Milled (dwt.) .. 5.92

		Per Ton Milled s. d.
Working Revenue	£1,249,010	73 8
Working Costs	710,177	41 11
WORKING PROFIT	538,833	31 9
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	10,368	
	549,201	
Sundry Expenditure less Sundry Revenue	5,631	
TOTAL PROFIT (subject to Taxation and Government's share)	£543,570	
Estimated Taxation and Government's share of profit	£ Nil	
Capital Expenditure	£250,287	

PAYABLE DEVELOPMENT

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Basal Reef	13,107	3,445	1,650	48	12.2	33	401

In addition 4,546 feet of station cutting was accomplished during the quarter, all at No. 2 Shaft.

DIVIDEND : On 14th March, 1958, Dividend No. 5 of 1s. 0d. per share was declared payable to shareholders registered at 15th April, 1958. Dividend warrants will be posted about 20th May, 1958.

MARIEVALE CONSOLIDATED MINES, LTD.

ISSUED CAPITAL .... £2,250,000 IN SHARES OF 10s. EACH

Tons Milled .. 211,000 — Gold Produced (in oz fine) .. 55,458
Yield per Ton Milled (dwt.) .. 5.26

		Per Ton Milled s. d.
Working Revenue	£690,343	65 5
Working Costs	446,228	42 3
WORKING PROFIT	244,115	23 2
Additional Revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January, 1958	5,730	
	249,845	
Sundry Revenue less Sundry Expenditure	4,445	
TOTAL PROFIT (subject to Taxation and Government's share)	£254,290	
Estimated Taxation and Government's share of profit	£122,700	
Capital Expenditure	£30,193	

PAYABLE DEVELOPMENT

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Av. value dwt.	Width ins.	Inch/dwt.
Main Reef	4,210	3,615	970	27	23.8	10	238
Kimberley Reef	4,633	2,915	755	26	12.0	21	253

WINKELHAAK MINES, LIMITED

(Incorporated in the Union of South Africa)

ISSUED CAPITAL .... 12,000,000 SHARES OF 10s. EACH

SHAFT SINKING

A further 1,368 feet of station cutting was done at Nos. 1 and 3 Shafts. Good progress has been made with the erection of the No. 3B Shaft headgear.

DEVELOPMENT

14,865 feet of development was done during the quarter of which 7,415 feet was on reef and sampled. 4,600 feet was payable and averaged 7.7 dwt. over 43 inches, equivalent to 332 inch-dwt.

A discount has been applied to development values to conform with adjustments which will be necessary in estimating ore reserves.

REDUCTION WORKS

The construction of the reduction works is approaching completion, and certain sections of the plant are already being tested.

EXPENDITURE

Wilkelhaak Mines, Limited

Expenditure on Shafts, Plant and Equipment and General Expenditure amounted to £793,681.

Evander Township, Limited

Capital Expenditure by this Company amounted to £49,767.

FINANCE

The National Finance Corporation of South Africa has recently agreed to grant the Company a five-year £1,000,000 loan bearing interest at the rate of 5¼ per cent per annum. This loan will be guaranteed by Union Corporation, Limited, for a fee of ½ per cent. per annum.

In addition, the Company's subsidiary, Evander Township, Limited, has arranged to borrow £750,000 from The South African Mutual Life Assurance Society as a 20-year secured loan at 6½ per cent per annum which will be guaranteed by this Company, and also, for a minimum period of three years, by Union Corporation, Limited, for a fee of ½ per cent per annum. At the termination of the Union Corporation guarantee the Society would have the right to terminate the loan.

These additional funds together with temporary loan finance of the order of £750,000, which Union Corporation, Limited, has indicated its willingness to find at an interest rate for the time being of 6½ per cent per annum, will, it is estimated, be sufficient to take the Mine to production at approximately 60,000 tons per month.

In the case of each of the above Companies, discounts have been applied to development values to conform with adjustments which are necessary in estimating the ore reserves at the year end.

No. 2 sub-vertical was over a width of 43.4 in.—substantially greater than in other parts of the mine, one piece of evidence which points to the former explanation, since in overall development as well the width was greater.

Another Anglo American mine, Welkom, announced sharply lower development. This, it is stated, was due to a sill encountered in the western section of the mine. This sill is now disappearing into the footwall, so it may be expected that results will return to something more like normal in the next three months.

South African Land and Exploration, an older mine of the group operating in the East Rand, had some extremely good disclosures on the land acquired from the Withok Proprietary Co. a year ago; 641 in. dwt. compared with 324 in the preceding quarter, while development within the original property continued steady. Payability on Withok was also encouraging at 72 per cent. The significance of these figures lies in the fact that payable development up to the end of 1957 on Withok had only averaged 329 in. dwt. with payability at 34.5 per cent. Thus, it appears that better values are being encountered as the workings proceed further into the new ground. Nevertheless, there is a great deal of exploration to be done before the full worth of the new ground can be estimated at all accurately.

Another good result on the East Rand came from Daggafontein Mines, where Kimberley reef development averaged 47.3 per cent payable at values of 511 in. dwt. gold and 27.75 in. lb. uranium, comparing with 25.5 per cent, 355 in. dwt. and 17.52 in. lb. previously. Main Reef Leader results were also better, but not to such a marked extent.

The first quarterly report from Western Deep Levels gave some measure of the rapidity with which work is proceeding on this gargantuan project. At the end of the quarter, four shafts were down to distances varying between 145 and 1,099 ft., while ancillary work is proceeding with considerable celerity.

Gold Fields

Another developing mine, around which a great deal of interest has been centred, is Free State Saaiplaas, managed by New Consolidated Gold Fields. The first shaft intersection by this promising mine was made in early March, but was of little significance, since the reef encountered, the "A", was not expected to carry economic values in this area. The main gold carrier, the Basal reef, is some 450 ft. deeper than the "A" horizon. At the present rate of sinking, the No. 1 shaft should cut the Basal horizon somewhere towards the middle of June—an interesting date in relation to Saaiplaas' new issue, the closing date for which is June 16.

Development at West Driefontein continued its immaculate and apparently unshakeable course with yet another 100 per cent return. Values were better, showing a recovery to 670 in. dwt. from last quarter's exceptionally low 609 in. dwt., but this is still well below the average for the financial year ended June, 1957, of 801 in. dwt. It seems certain, therefore, that development from No. 3 shaft, sited in the less rich eastern area, is now well under way. Nevertheless, the new No. 5 shaft, sited in what appears to be an exceptionally rich zone, even for West Drie., is now down to 5,269 ft., and when development gets under way in this part of the mine values may well recover to something like last year's figure.

Elsewhere on the West Wits Line the quarter's results were sound but undistinguished, with both profits and development much on a par with previous quarters, although Main reef payability at Venterspost was sharply down at 36 per cent, compared with 51½ per cent in the December quarter. Overall payability was thus reduced 11 points to 49.4 per cent, but the average values encountered partly compensated for this by increasing to 494 in. dwt. from 475.

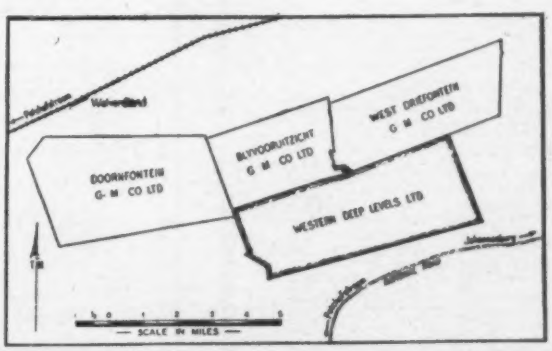
Central Mining

Turning to the mines administered from the Corner House, last quarter's improved development at Blyvooruitzicht continued. This mine also enjoyed a useful windfall in the form of the sale of capital equipment to the amount of £365,700. Bulls of Harmony (and there have been not a few recently) were disappointed by that mine's return, however, for while it was by no means bad, it revealed none of the remarkable reef exposures which rumour had called for.

Union Corporation

Another mine, the shares of which have moved steadily upwards in the last few weeks (in fact reaching several new eight-year highs), is St. Helena from the Union Corporation stable. Optimists had hoped for something outstanding in the way of values from work in the No. 2 shaft, where the reef had assayed over 5,900 in. dwt. on insection in an ore-pass. Here, again, they were disappointed, not by mediocre results, but by the fact that they were not announced at all. Another well-followed Union Corporation property, Winkelhaak, continued its good progress as the pioneer of the Bethal area. It seems probable that Winkelhaak will not

(*Continued on page* 19)



Lease area of Western Deep Levels on the West Wits line

THE CENTRAL MINING—RAND MINES GROUP

South African Mining Companies' Directors' Reports for Quarter ended 31st March, 1958
Office of the London Secretaries: 4 London Wall Buildings, E.C.2

The development values quoted hereunder represent actual results of sampling, no allowance having been made for any adjustments which were or may be necessary when estimating ore reserves at the end of the respective financial years

BLYVOORUITZICHT GOLD MINING COMPANY, LIMITED

Ore milled 307,000 tons. Slimes treated for Uranium Oxide 466,306 tons.

GOLD YIELD: Oz. fine 175,853; Dwt. per ton 11.456
URANIUM OXIDE YIELD: Lb. 155,625; Lb. per ton 0.334

		Per Ton Milled s. d.
Working Revenue	£2,192,385	142 10
Working Expenditure	986,892	64 4
WORKING PROFIT	£1,205,493	78 6

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, £18,816, profit from uranium and sulphuric acid £401,441, and sundry revenue (net) £35,500, the Total Profit was £1,661,250.

Uranium and Sulphuric Acid Loan Accounts quarterly instalment was (Dr.) £157,300, made up of capital £124,300 and interest £33,000. No allowance has been made for this payment in arriving at the estimated profit from uranium and sulphuric acid shown above.

Capital expenditure on shaft sinking and equipment, etc., amounted to £81,800 which included £10,200 expended in connection with the uranium and sulphuric acid plants. Capital equipment disposed of amounted to £365,700, and there was therefore a net credit of £283,900 in respect of capital expenditure for the quarter.

Taxation and Lease Consideration was £884,100.

DEVELOPMENT totalled 12,564 feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Gold Channel value dwt./ton	Channel Width In.	Uranium Oxide Channel value lb./ton
Carbon Leader	4,355	4,120	94.6	98.8	8	3.485

CITY DEEP, LIMITED

Ore milled 431,000 tons. Yield 82,117 oz. fine. Yield per ton 3.811 dwt.

		Per Ton Milled s. d.
Working Revenue	£1,023,569	47 6
Working Expenditure	995,820	46 3
WORKING PROFIT	£27,749	1 3

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, £8,214, and Sundry Revenue £8,200, the Total Profit was £44,163.

Taxation £700.

Capital Expenditure £34,400.

DEVELOPMENT totalled 4,935 feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Channel Value, Dwt.	Channel Width, In.
Pyritic Quartzite Reef	40	10	25.0	5.7	52
Main Reef	330	30	9.1	5.9	40
Main Reef Leader	1,710	730	42.7	9.6	33
South Reef	1,260	510	40.5	7.2	37
Kimberley Reef	15	—	—	—	—
Totals and Averages	3,355	1,280	38.2	8.4	35

CONSOLIDATED MAIN REEF MINES AND ESTATE, LIMITED

Ore milled 403,000 tons. Yield 64,054 oz. fine. Yield per ton 3.179 dwt.

		Per Ton milled s. d.
Working Revenue	£798,424	39 7
Working Expenditure	764,711	37 11
WORKING PROFIT	£33,713	1 8

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957, to January, 1958, £6,619, and sundry revenue £8,700, the Total Profit was £49,032.

Taxation £2,000.

DEVELOPMENT totalled 5,034 feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Channel Value, Dwt.	Channel Width, In.
Kimberley Reef	200	100	50.0	4.3	53
Bird Reef	680	240	35.3	4.4	50
South Reef	600	250	41.7	26.3	12
Main Reef Leader	1,170	390	33.3	26.1	12
Main Reef	330	120	36.4	8.0	29
Totals and Averages	2,980	1,100	36.9	10.7	26

HARMONY GOLD MINING COMPANY, LIMITED

Ore milled 227,000 tons. Slimes treated for Uranium Oxide 227,200 tons.

GOLD YIELD: Oz. fine 92,990; Dwt. per ton 8.193
URANIUM OXIDE YIELD: Lb. 117,282; Lb. per ton 0.516

		Per Ton milled s. d.
Working Revenue	£1,160,792	102 3
Working Expenditure	741,920	65 4
WORKING PROFIT	418,872	36 11

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, £9,816 and profit from Uranium and Pyrite £316,100 less sundry expenditure (net) £5,600, the Net Profit was £739,188.

Dividend No. 4 of 1s. per share, declared on 17th March, 1958, £900,000.

URANIUM AND PYRITE FLOTATION PLANT LOAN ACCOUNT—Quarterly instalment (Dr.) £117,900, made up of Capital £87,800 and Interest £30,100.

No allowance has been made for this payment in arriving at the estimated profit from uranium shown above.

CAPITAL EXPENDITURE—Capital expenditure on shaft sinking, equipment, etc. (net) amounted to £531,400 which includes £35,200 expended in connection with the uranium and pyrite flotation plants.

PYRITE FLOTATION PLANT—The plant treated 227,200 tons during the quarter for a sulphur extraction of 1.136%.

No. 2 SHAFT—The shaft was sunk 240 ft. to a depth of 5,394 ft. below the collar, concrete lined to a depth of 5,356 ft. and equipped to a depth of 5,191 ft. 21 Level Station was concreted, 25 Level Station, the main pump station and the transfer loading station, were all excavated and concreted. It is expected that the shaft will be commissioned during the early part of May.

UNDERGROUND WATER—The present daily (24 hours) pumping capacity remained at 8 million gallons, but was made more secure by the installation of additional standby units at No. 3 Shaft. Work is well advanced on the provision of additional capacity at No. 2 Shaft. The average quantity of water pumped per 24 hours for the month of March, 1958, was 3,822,000 gallons and for the quarter 3,529,000 gallons.

CAPACITY OF GOLD REDUCTION PLANT—The rated capacity of the gold plant has been increased to 100,000 tons per month due to modifications made in the plant. Each of the two units in the plant now has a rated capacity of 50,000 tons per month, and it is intended that the third and fourth units will be the same size.

EXPANSION OF OPERATIONS—As the expansion of the gold plant to 150,000 tons per month and the corresponding expansion of the uranium plant is making satisfactory progress and is expected to be completed by July, 1958, work has been put in hand for the installation of the fourth units of the gold and uranium plants. It is planned to complete these by the beginning of 1960. The nominal capacity of the gold plant will then be 200,000 tons per month.

The Company's application to the Atomic Energy Board for permission to extend the capacity of the pyrite flotation plant and to erect a sulphuric acid plant, is still under consideration by the authorities concerned.

DEVELOPMENT——No. 2 Shaft Area 3,925 ft. (including station, pump chamber and 240 ft. sunk in No. 2 Shaft.) Remainder of Mine 7,157 ft. Total 11,082 ft.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Gold Channel Value Dwt. per ton	Gold Channel Width Inches	Uranium Oxide Channel Value lb./ton
No. 2 Shaft Area—						
Basal Reef	1,160	1,160	100.0	22.2	28	1.467
Remainder of Mine—						
Basal Reef	2,350	1,735	73.8	27.8	17	1.817
Totals and Averages	3,510	2,895	82.5	25.3	21	1.665

CROWN MINES, LIMITED

Ore milled 676,000 tons. Yield 103,800 oz. fine. Yield per ton 3.071 dwt.

		Per Ton Milled s. d.
Working Revenue	£1,294,311	38 3
Working Expenditure	1,246,281	36 10
WORKING PROFIT	£48,030	1 5

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, £9,935, and sundry revenue £12,600, the Total Profit was £70,565.

Taxation £6,000.

Capital Expenditure on equipment, etc. (net) (Dr.) £2,700, Property (Cr.) £2,800.

DEVELOPMENT totalled 8,981 feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Channel Value Dwt.	Channel Width Inches
Kimberley Reef	170	—	—	—	—
South Reef	1,050	450	42.9	6.7	41
Main Reef Leader	940	450	47.9	36.0	8
Main Reef	3,480	700	20.1	7.2	41
North Reef	40	—	—	—	—
Totals and Averages	5,680	1,600	28.2	9.0	32

DURBAN ROODEPOORT DEEP, LIMITED

Ore milled **531,000** tons. Yield **95,729** oz. fine Yield per ton **3.606** dwt.

		Per Ton Milled s. d.
Working Revenue	£1,193,109	44 11
Working Expenditure	1,043,875	39 4
WORKING PROFIT	£149,234	5 7

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, **£9,447** and sundry revenue **£10,600**, the Total Profit was **£169,281.**

Taxation **£34,500.**

Capital Expenditure on shaft sinking and equipment, etc. (net), **£43,600.**

DEVELOPMENT totalled **16,246** feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Channel Value Dwt.	Channel Width Inches
Main Reef	2,400	1,320	55.0	10.9	50
South Reef	500	190	38.0	50.8	5
Kimberley Reef	6,000	2,830	47.2	5.8	45
Totals and Averages	8,900	4,340	48.8	7.7	45

No. 5A Shaft was sunk **28** feet to a total depth of **3,100** feet.

EAST RAND PROPRIETARY MINES, LIMITED

Ore milled **650,000** tons. Yield **167,119** oz. fine. Yield per ton **5.142** dwt.

		Per Ton Milled s. d.
Working Revenue	£2,082,053	64 1
Working Expenditure	1,646,727	50 8
WORKING PROFIT	£435,326	13 5

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, **£17,256**, and sundry revenue **£12,100**, the Total Profit was **£464,682.**

Taxation **£113,600.**

Capital Expenditure, on Shaft Sinking and Equipment, etc. (Net) **£103,800.**

DEVELOPMENT totalled **9,770** feet.

PAYABLE DISCLOSURES

Reef	Footage Sampled	Feet	%	Channel Value Dwt.	Channel Width Inches
South Reef	360	—	—	—	—
Composite Reef	1,510	800	53.0	16.2	32
Main Reef	80	50	62.5	7.5	24
Totals and Averages	1,950	850	43.6	15.6	32

Far East Sub-Vertical Shaft was sunk **92** feet to a total depth of **165** feet below the collar.

MODDERFONTEIN EAST, LIMITED

Ore milled **396,000** tons. Yield **39,447** oz. fine. Yield per ton **1.992** dwt.

		Per Ton milled s. d.
Working Revenue	£492,096	24 10
Working Expenditure	487,203	24 7
WORKING PROFIT	£4,893	0 3

Adjusting for additional revenue received during the quarter in respect of gold sold for the period August, 1957/January, 1958, **£4,245**, and sundry revenue, **£3,800**, the Total Profit was **£12,938.**

Taxation and Mineral Lease Consideration **£3,600.**

DEVELOPMENT totalled **605** feet.

PAYABLE DISCLOSURE

Reef	Footage Sampled	Feet	%	Channel Value, Dwt.	Channel Width, Inches
Main Reef Leader	400	195	48.8	4.3	39

WITWATERSRAND NIGEL LIMITED

(Incorporated in the Union of South Africa)

REPORT OF THE DIRECTORS

for the Quarter ended 31st March, 1958

PRODUCTION

		Per Ton Milled s. d.
Tons Milled	52,600	
Yield (in oz. fine)	12,905	
Yield per Ton Milled (dwts.)	4.907	
Working Revenue	£160,743	61 1
Working Costs	142,985	*54 4
Working Profit	17,758	6 9
Add : Sundry Revenue	1,700	
NET PROFIT	£19,458	

(*221s. 7d. per oz. fine)

Additional revenue received during the Quarter in respect of gold sold to the Reserve Bank for the period August, 1957/January 1958 amounted, to **£1,304.**

CAPITAL EXPENDITURE

The Capital Expenditure for the Quarter amounted to **£2,284.**

DEVELOPMENT

Development Footage	5,069 feet
Footage on Reef	3,663 feet
Footage Sampled	3,500 feet

The payable reef disclosures were as follows :

725 feet, or **20.7%**, averaging **13.1** dwt. per ton over a width of **22.5** inches, equivalent to **294** inch-dwts.

(No allowance has been made in the above results for adjustments necessary before calculation of the corresponding Ore Reserve.)

By Order of the Board,
J. F. INCE, London Secretary.

London Office : Finsbury Pavement House,
120, Moorgate, London, E.C.2.

16th April, 1958.

SPAARWATER GOLD MINING CO., LTD.

(Incorporated in the Union of South Africa)

REPORT OF THE DIRECTORS

For the Quarter ended 31st March, 1958

		Per Ton Milled s. d.
Tons Milled	31,700	
Total Yield in ounces fine	9,799	
Total yield per ton (dwt.)	6.182	
Working Revenue	£121,930	76 11
Cost of Mining and Milling	98,392	62 1
Excess of Revenue over cost of Mining and Milling	23,538	14 10
Expenditure on Development	22,036	13 11
Working Profit	£1,502	11

NOTE.—Additional revenue received during the quarter in respect of gold sold to the Reserve Bank for the period August, 1957, to January, 1958, was **£988.**

Expenditure on Capital Account	Nil
Government Taxes	Nil

DEVELOPMENT

The total footage advanced during the quarter amounted to **3,361** feet. The footage sampled amounted to **2,835** feet, of which **645** feet, equal to **22.8** per cent, proved payable at an average value of **7.8** dwt. per ton over an estimated stoping width of **36.0** inches, equivalent to **281** inch-dwt.

WESTERN SECTION OF MINE

Development in the Western Section of the Mine continued during the quarter. The footage sampled amounted to **2,395** feet of which **515** feet, equal to **21.5** per cent., proved payable at an average value of **8.7** dwt. per ton over an estimated stoping width of **36.0** inches, equivalent to **313** inch-dwt.

43 Int. W. **15** Haulage was advanced **219** feet towards the Western Boundary of the mine. The footage sampled, included in the above figures, amounted to **100** feet, all of which proved unpayable. Due to a steepening in the dip of the reef, the haulage is now in hangingwall country.

Development returns show the actual sampling results : adjustments which may be required when estimating ore reserves have not been applied.

By Order of the Board,
J. F. INCE, London Secretary.

London Office: Finsbury Pavement House,
120, Moorgate, London, E.C.2.

15th April, 1958.

ANGLO-TRANSVAAL CONSOLIDATED INVESTMENT CO. LIMITED

(Incorporated in the Union of South Africa)

Operating Statistics and Vital Information extracted from the Directors' Reports for Mining Companies associated with the Group for the quarter ended 31st March, 1958.

HARTEBEESTFONTEIN GOLD MINING COMPANY, LIMITED.

PRODUCTION

		Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Gold :	Tons milled	247,000	257,000
	Yield—ounces fine	135,435	139,655
	—dwt. per ton milled	10.966	10.868
Uranium :	Tons treated :		
	From current slimes	247,000	257,000
	From surface accumulations	83,000	43,000
	Total	330,000	300,000
	Yield—lb. of uranium oxide	264,555	243,999
	—lb. per ton treated	0.802	0.813

FINANCIAL INFORMATION

		Per ton milled		Per ton milled
Revenue from gold	£1,688,260	136s. 9d.	£1,743,610	135s. 8d.
Working costs	£810,900	65s. 8d.	£836,674	65s. 1d.
Working profit	£877,360	71s. 1d.	£906,936	70s. 7d.
Sundry mining revenue	£24,000	1s. 11d.	£20,200	1s. 7d.
Total working profit from gold production	£901,360	73s. 0d.	£927,136	72s. 2d.
Estimated profit from uranium production	£765,630		£694,958	
Total Working Profit for Quarter	£1,666,990		£1,622,094	
Working costs (gold only) per ounce fine		119s. 9d.		119s. 10d.
Development expenditure per ton milled included in working costs		14s. 8d.		13s. 6d.

NOTE : Uranium output and profit are subject to adjustment.

The following amounts have not been taken into consideration in calculating the working profit shown above :—

(*a*) Additional revenue received from gold sales to the Reserve Bank for the period August, 1957/January, 1958	£15,342	Nil
(*b*) Loans obtained for gold production—Interest	£26,235	£26,808
(*c*) Loans obtained for uranium production—Interest	£25,853	£24,802
Loan repayment	£61,073	£56,710

CAPITAL EXPENDITURE

Gold production (including £29,198 on excess development)	£482,357	£542,824
Uranium plant	£9,648	£33,573
Total	£492,005	£576,397
Taxation and Government's share of Profits for the nine months ended 31st March, 1958	Nil	

DEVELOPMENT

Footage advanced		16,771		18,617
Sampling results of development on Vaal Reef at No. 1 Shaft :—	Total	Payable	Total	Payable
Footage sampled	10,055	9,540 (94.9%)	9,385	8,820 (94.0%)
Channel width (inches)	14.4	14.4	16.6	16.3
Inch-dwt. (gold)	388	404	400	419
Inch-lb. (uranium oxide)	35.28	36.20	36.16	37.31

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

SHAFT SINKING AND EQUIPPING

No. 2 Vertical Shaft :

The installation of the 6,600 h.p. winder has been completed, and it will be commissioned after testing.

No. 2A Sub-vertical Shaft :

Footage sunk	1,033 feet	1,023 feet
Depth below collar	2,456 feet	1,423 feet
Concrete lining accomplished	1,033 feet	1,001 feet
Depth of concrete lining below collar	2,426 feet	1,393 feet

A pump station was excavated at a depth of 1,900 feet.

No. 3 Vertical Shaft :

Footage sunk	1,472 feet	821 feet
Depth below collar	2,443 feet	971 feet
Concrete lining accomplished	1,464 feet	804 feet
Depth of concrete lining below collar	2,413 feet	949 feet

The Black Reef Series was intersected at the base of the Dolomite at a depth of 1,615 feet and the shaft passed into the Ventersdorp Lava at 1,653 feet. No values of economic importance were encountered.

A pump station was excavated at a depth of 1,653 feet.

GENERAL

Reduction Plant.—Extensions to the plant are in progress.

RAND LEASES (VOGELSTRUISFONTEIN) GOLD MINING COMPANY, LIMITED.

PRODUCTION

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	468,000	510,000
Yield—ounces fine	70,863	77,358
—dwt. per ton milled	3.028	3.034

FINANCIAL INFORMATION

		Per ton milled		Per ton milled
Revenue from gold	£883,074	37s. 9d.	£965,781	37s. 10d.
Working costs	£886,943	37s. 11d.	£962,550	37s. 9d.
Working loss	£3,869	2d.	*£3,231	*1d.
Sundry mining revenue	£9,500	5d.	£18,400	9d.
Total Working Profit for Quarter	£5,631	3d.	£21,631	10d.
		* Working Profit		
Working costs per ounce fine		250s. 4d.		248s. 10d.
Development expenditure per ton milled included in working costs		2s. 11d.		3s. 2d.

The following amount has not been taken into consideration in calculating the working revenue shown above :—

Additional revenue received from gold sales to the Reserve Bank for the period August, 1957/January, 1958	£7,540	Nil
Capital Expenditure	£5,292	£6,121
Estimated Taxation and Government's share of profits for the nine months ended 31st March, 1958	Nil	Nil

DEVELOPMENT

Footage advanced	11,561	14,242

Sampling results obtained :

	Total	Payable	Total	Payable
Main Reef				
Footage	1,590	660 (42%)	2,830	1,560 (55%)
Channel width (inches)	32.8	32.0	42.2	34.3
Inch-dwt.	157	248	182	225
Main Reef Leader				
Footage	2,650	1,090 (41%)	2,870	1,620 (56%)
Channel width (inches)	15.0	12.8	11.4	15.6
Inch-dwt.	133	212	220	348
South Reef				
Footage	150	85 (57%)	160	105 (66%)
Channel width (inches)	9.8	9.2	9.6	9.8
Inch-dwt.	122	155	350	477
Total—Main Reef Series				
Footage	4,390	1,835 (42%)	5,860	3,285 (56%)
Channel width (inches)	21.2	19.6	26.2	24.3
Inch-dwt.	141	222	205	294
Bird Reef				
Footage	660	350 (53%)	810	390 (48%)
Channel width (inches)	44.4	45.6	46.1	46.1
Inch-dwt.	154	210	168	228
Kimberley Reef				
Footage	1,390	680 (49%)	1,890	650 (34%)
Channel width (inches)	57.5	52.7	74.3	76.1
Inch-dwt.	160	216	193	294
Total—All Reefs				
Footage	6,440	2,865 (44%)	8,560	4,325 (51%)
Channel width (inches)	31.4	30.6	38.7	34.0
Inch-dwt.	147	219	199	288

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

MIDDLE WITWATERSRAND (WESTERN AREAS) LIMITED.

The following relates to this Company's subsidiary :—

NEW KLERKSDORP GOLD ESTATES, LIMITED

	Quarter ended 31st March, 1958	Per ton milled	Quarter ended 31st December, 1957	Per ton milled
Net loss from gold production	£23,170	14s. 9d.	£19,272	11s. 7d.
Estimated profit from Uranium production (subject to adjustment)	39,500		38,500	
Total Working Profit for Quarter	£16,330		£19,228	

The following amounts have not been taken into consideration in calculating the working profit shown above :—

Loans obtained for uranium production :—		
Interest	£540	£557
Loan Repayment	1,711	1,694
Estimated taxation for the quarter ended 31st March, 1958	£1,700	

EASTERN TRANSVAAL CONSOLIDATED MINES, LIMITED.

PRODUCTION	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	53,900	55,500
Yield—ounces fine	18,286	17,796
—dwt. per ton milled	6.785	6.413
FINANCIAL INFORMATION		
Revenue from gold	£227,224	£221,549
Working costs	£186,660	£181,313
Working profit	£40,564	£40,236
Sundry mining revenue	£8,436	£5,900
Total Working Profit for Quarter	£49,000	£46,136

The following amount has not been taken into consideration in calculating the working profit shown above :—

Additional revenue received from gold sales to the Reserve Bank for the period August 1957/January, 1958	£1,776	Nil
Capital Expenditure	£20,858	£22,019
DEVELOPMENT		
Footage advanced	8,199	8,737
SHAFT SINKING AND EQUIPPING		
Agnes Gold Mine :—Cesca sub-vertical Shaft :		
Footage sunk	164 feet	105 feet
Depth below 17 level	865 feet	701 feet

The excavation of 23 station was completed.

GENERAL

Power Supply—The 3,000 KW turbine at the Noordkaap Power Station was commissioned during the quarter and is operating satisfactorily.

RIEBEECK GOLD MINING COMPANY, LTD.

FINANCIAL INFORMATION	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Capital Expenditure	£413,924	£453,667

The total Capital Expenditure incurred to 31st March, 1958, including preliminary expenses and the acquisition of mineral and surface rights amounted to £2,413,449.

DEVELOPMENT		
Footage advanced by Loraine Gold Mines Limited for and on behalf of Riebeeck Gold Mining Company, Limited	395 feet	2,394 feet

Progress was retarded by the intersection of a water-bearing fissure requiring cementation.

The return airway and the companion haulage from Loraine Gold Mines, Limited, advanced to points 2,016 feet and 2,048 feet, respectively, inside the Riebeeck Company's property approximately 10,300 feet from the Loraine Shaft.

Several conglomerate bands of no economic importance were intersected during the quarter.

In the near future the development operation from the Loraine Shaft will be suspended as this development has now reached a point where a holing can be made economically from the Riebeeck No. 1 Shaft. Prior to the suspension of these operations, in order to obtain additional structural information, several diamond drill holes are being drilled in the haulage.

SHAFT SINKING AND EQUIPPING		
No. 1 Shaft :		
Footage sunk	350 feet	33 feet
Depth below collar	471 feet	121 feet
Concrete lining accomplished	315 feet	17 feet
Depth of concrete lining below collar	420 feet	105 feet

The sinking stage and the mechanical shaft cleaning unit have been installed.

GENERAL

Mine Buildings and Plant—The platform winder and the service winder have been brought into commission.

Work on the change house has been completed and the building is now in use.

Pre-cementation—Pre-cementation operations at No. 1 Shaft are being carried out by means of the drilling of a surface borehole which has now reached a depth of 5,134 feet. No fissures were intersected during the quarter.

VILLAGE MAIN REEF GOLD MINING COMPANY (1934) LIMITED.

PRODUCTION	Quarter ended 31st March, 1958		Quarter ended 31st December, 1957	
Tons milled	86,000		96,000	
Yield—ounces fine	14,580		15,457	
—dwt. per ton milled	3.391		3.220	
FINANCIAL INFORMATION		Per ton milled		Per ton milled
Revenue from gold	£181,651	42s. 3d.	£192,872	40s. 2d.
Working costs	£170,564	39s. 8d.	£185,690	38s. 8d.
Working profit	£11,087	2s. 7d.	£7,182	1s. 6d.
Sundry mining revenue	£830	2d.	£1,440	4d.
Total Working Profit for Quarter	£11,917	2s. 9d.	£8,622	1s. 10d.
Working costs per ounce fine	234s. 0d.		240s. 3d.	
Development expenditure per ton milled included in working costs	2s. 4d.		3s. 8d.	

The following amount has not been taken into consideration in calculating the working profit shown above :—

Additional revenue received from gold sales to the Reserve Bank for the period August, 1957/January, 1958	£1,575	Nil
Capital Expenditure	Nil	Nil
Estimated taxation for the nine months ended 31st March, 1958	Nil	Nil
DEVELOPMENT		
Footage advanced	3,067	2,723
Reconditioning footage	2,277	2,275

VIRGINIA O.F.S. GOLD MINING CO. LTD.

PRODUCTION		Quarter ended 31st March, 1958		Quarter ended 31st December, 1957	
Gold :	Tons milled	288,000		299,000	
	Yield—ounces fine	75,856		78,367	
	—dwt. per ton milled	5.268		5.242	
Uranium:	Tons treated	288,000		350,536	
	Yield—lb. of uranium oxide	147,562.5		177,445	
	—lb. per ton treated	0.512		0.506	
FINANCIAL INFORMATION			Per ton milled		Per ton milled
Revenue from gold		£945,253	65s. 7d.	£979,878	65s. 7d.
Working costs		846,109	58s. 9d.	814,575	54s. 6d.
Working profit		£99,144	6s. 10d.	£165,303	11s. 1d.
Sundry mining revenue		10,500	9d.	16,037	1s. 1d.
Total working profit from gold production		£109,644	7s. 7d.	£181,340	12s. 2d.
Estimated profit from uranium production		£412,783		£490,025	
Estimated profit from acid production		78,708		75,171	
Total Working Profit for Quarter		£601,135		£746,536	
Working costs (gold only) per ounce fine		223s. 1d.		207s. 11d.	
Development expenditure per ton milled included in working costs		9s. 10d.		8s. 8d.	

Note : Uranium output and profit are subject to adjustment.

The following amounts have not been taken into consideration in calculating the working profit shown above :—

(*a*) Additional revenue received from gold sales to the Reserve Bank for the period August, 1957/January, 1958		£7,507	Nil
(*b*) Debenture and Loan Stocks, Housing and other loans—Interest		£69,000	£63,705
(*c*) Loans obtained for Acid and Uranium production—Interest		£57,365	£58,780
	—Loan Repayment	£162,354	£143,566
Capital Expenditure :			
Gold production (including £88,518 on excess development)		£400,316	£540,575
Uranium and Acid plants		£37,582	£41,621
Total		£437,898	£582,196
Taxation and Government's share of profits for the quarter ended 31st March, 1958		Nil	
DEVELOPMENT			
Footage advanced		17,042	17,167

This includes the following development advanced towards the Merriespruit property in terms of the agreement entered into with Merriespruit (Orange Free State) Gold Mining Company, Limited :—

28th level haulage	1,385 feet	442 feet
Companion haulage	2,809 feet	1,399 feet
Excavations (cubic feet)	8,860	970

Progress in these ends was retarded by the intersection of water-bearing fissures requiring cementation.

Sampling results of development on Basal and Leader Reefs at No. 1 Shaft :—

	Total	Payable	Total	Payable
Footage sampled	6,940	2,220 (32.0%)	9,450	3,880 (41.1%)
Channel width (inches)	34.2	34.3	37.8	37.2
Inch-dwt. (gold)	170	338	225	396
Inch-lb. (uranium oxide)	15.53	29.73	20.64	35.92

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the Corresponding Ore Reserve.)

SHAFT SINKING AND EQUIPPING

No. 1 Shaft : 52,310 cubic feet were excavated in pump chambers and sumps.

No. 2 Shaft :		
Footage sunk	87 feet	Nil
Depth below collar	3,703 feet	3,616 feet
Concrete lining accomplished	105 feet	Nil
Depth of concrete lining below collar	3,681 feet	3,576 feet

13,790 cubic feet were excavated in the loading bin.

GENERAL

During March, operations were adversely affected by an accident in No. 1 Shaft. The Company is insured against loss and a claim has been submitted to the insurance company.

The programme to increase the underground pumping capacity to 15 million gallons per day was completed.

MERRIESPRUIT (ORANGE FREE STATE) GOLD MINING COMPANY, LIMITED.

FINANCIAL INFORMATION	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Capital Expenditure (including £4,754 on uranium plant)	£71,161	£73,772
DEVELOPMENT		

The following were the footages advanced in the 28th level haulages being driven by the Virginia Mine towards the Merriespruit property :—

28th level haulage	1,385 feet	442 feet
Companion haulage	2,809 feet	1,399 feet
Excavations (cubic feet)	8,860	970

Progress was retarded by the intersection of water-bearing fissures requiring cementation.

JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY, LIMITED GROUP

MINING COMPANIES' REPORTS FOR THE QUARTER ENDED 31st MARCH, 1958 WITH COMPARATIVE FIGURES FOR THE PREVIOUS QUARTER.

(All Companies mentioned are incorporated in the Union of South Africa)

GENERAL REMARKS—In determining the payable footage, gold has been taken at 248s. 3d. per ounce fine.
The development values are the actual results of the sampling of development work on reef; no allowance has been made for modifications which may be necessary when computing ore reserves.

GOVERNMENT GOLD MINING AREAS (Modderfontein) CONSOLIDATED, LIMITED.

ISSUED CAPITAL £1,260,000
(Divided into 5,600,000 shares of 4s. 6d. each, fully paid)
(See note below)

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	187,000	182,000
Gold recovered from current milling—ounces fine	32,669	31,052
Recovery per ton—dwt.	3.494	3.412
Gold recovered from old residues—ounces fine	3,503	3,565
RESULTS OF OPERATIONS		
Revenue from Gold, Silver and Osmiridium	£449,483	£430,983
Rents and Sundry Revenue	7,021	9,316
Revenue from Sales of Salvaged Equipment	9,639	20,157
	£466,143	£460,456
NOTE : The revenue from gold includes revenue from sales of gold derived from the treatment of old residues.		
Less : Working Costs	462,435	455,980
Profit from Gold Mining, Salvage, Treatment of old residues and Sundry Revenue	£3,708	£4,476
Add : Revenue from Pyrite, representing the value of the output less plant operating costs and provision for interest on and repayment of the loans raised for the project	69,944	59,219
OPERATING PROFIT FOR QUARTER	£73,652	£63,695
Less : Estimated Government Share of Profits and Taxation	14,900	9,200
PROFIT AFTER TAXATION	£58,752	£54,495

NOTE : In addition to the revenue for the quarter shown above an amount of £3,590 was received from gold sold to the S.A. Reserve Bank during the period August, 1957, to January, 1958. (The revenue for the previous period, February to July, 1957, amounted to £5,547 and was reflected in the Report for the quarter ended 30th September, 1957.) The additional revenue has been taken into account in arriving at the provision for Government Share of Profits.

CAPITAL EXPENDITURE	—	—
PYRITE LOANS		
Quarterly instalment paid in respect of interest on and redemption of loans raised by this Company	£10,350	£10,350
Balance of Pyrite Loans at end of quarter	£236,364	£244,307
DEVELOPMENT		
Total Development—feet	319	151
Sampled—feet	320	105
Payable—feet	135	—
Percentage payable	42	—
Value—dwt.	18.4	—
Width—in.	16	—
Inch-dwt.	294	—

REDUCTION OF CAPITAL

At the Extraordinary General Meeting of the Company held in Johannesburg on the 23rd January, 1958, a Special Resolution was passed providing for the reduction of the capital of the Company from £1,400,000 divided into 5,600,000 shares of 5s. each, to £1,260,000 divided into 5,600,000 shares of 4s. 6d. each, by returning to members 6d. per share.

In a circular dated 12th March, 1958, members were informed that the reduction of the Capital of the Company was confirmed by an Order of the Supreme Court of the Union of South Africa on 11th March, 1958, and would become effective immediately upon the registration of the Order on the 31st March, 1958.

The return of 6d. per share accrued to members who were registered in the books of the Company at the close of business on 31st March, 1958, and to holders of Share Warrants to Bearer. Cheques will be despatched on 29th April, 1958.

FREDDIES CONSOLIDATED MINES, LIMITED.

ISSUED CAPITAL £16,359,913
(Divided into 16,359,913 shares of £1 each, fully paid)

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold :		
Tons milled	139,000	153,000
Gold—ounces fine	46,998	52,971
Yield per ton—dwts.	6.76	6.92
Cost per ton milled	94s. 6d.	91s. 9d.
Uranium (Joint Production Scheme) :		
Tonnage Entitlement of this Company	135,998	153,736
Lb. apportioned	43,236	51,926
Yield per ton on lb. apportioned	.318	.338
RESULTS OF OPERATIONS		
Revenue from Gold and Sundry Revenue	£598,472	£674,850
Less : Working Costs	656,911	701,883
LOSS ON GOLD MINING	£58,439	£27,033
Uranium—Estimated Net Revenue from Uranium, subject to future adjustments and representing the revenue less the share of joint pumping, treatment and amortisation charges apportioned to this Company from the Joint Production Scheme for the quarter	77,000	90,000
OPERATING PROFIT FOR QUARTER	£18,561	£62,967

NOTE : In addition to the revenue for the quarter shown above an amount of £5,282 was received from gold sold to the S.A. Reserve Bank during the period August, 1957, to January, 1958. (The revenue for the previous period, February to July, 1957, amounted to £4,371 and was reflected in the Report for the quarter ended 30th September, 1957.)

Taxation : As the Company has an accumulated loss for tax purposes, it was not necessary to make provision for taxation for the quarter.

INTEREST PAYABLE		
Interest on amounts advanced to the Company by the National Finance Corporation of South Africa and certain Building Societies. (Not taken into account when arriving at the operating profit for the quarter.)	£15,315	£15,599
CAPITAL EXPENDITURE		
On Mining Installations	£24,850	£18,981
DEVELOPMENT		
Total Development—feet	11,728	15,404
Sampled—feet	1,235	2,220
Payable—feet	*630	*1,330
Percentage payable	51	60
Value—dwt.	60.8	71.3
Value—lb. uranium	4.1	4.7
Width—inches	6	6
Inch-dwt.	365	428
Inch-lb. uranium	24.6	28.2

* Payability is based on the combined Gold and Uranium content.

GENERAL REMARKS

Shares in Free State Geduld Mines, Limited.

During the quarter 5,500 fully paid shares of Free State Geduld Mines, Limited were sold for a consideration of £22,544 and at 31st March, 1958, the Company's holding in that company was reduced to 63,000 fully paid shares.

THE EAST CHAMP D'OR GOLD MINING COMPANY, LIMITED.

ISSUED CAPITAL £259,875
(Divided into 2,079,000 shares of 2s. 6d. each, fully paid)

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	35,500	35,000
Gold—ounces fine	883	1,165
Yield per ton—dwt.	.497	.666
Uranium Oxide—lb.	28,055	28,146
Yield per ton—lb.	.790	.804
Cost per ton milled	51s. 3d.	55s. 1d.
RESULTS OF OPERATIONS		
Revenue from Gold and Sundry Revenue	£12,279	£16,408
Estimated Net Uranium Revenue subject to future adjustments, and representing the estimated value of output less plant operating costs and provision for interest on and repayment of loans raised for the project	96,900	98,900
	£109,179	£115,308
Less : Working Costs	91,027	96,365
OPERATING PROFIT FOR QUARTER	£18,152	£18,943
Less : Estimated Taxation	6,300	5,700
PROFIT AFTER TAXATION	£11,852	£13,243

NOTE : In addition to the revenue for the quarter shown above an amount of £109 was received from gold sold to the S.A. Reserve Bank during the period August, 1957, to January, 1958. (The revenue for the previous period, February to July, 1957, amounted to £96, and was reflected in the Report for the quarter ended 30th September, 1957.) This additional revenue has been taken into account in arriving at the provision for taxation.

URANIUM LOANS		
Quarterly instalment paid in respect of interest on and redemption of loans raised by this Company	£3,905	£3,905
Balance of Uranium Loans at end of quarter	£92,187	£95,155
DEVELOPMENT		
Bird Reef Series		
Development—feet	3,465	3,637
Sampled—feet	2,440	2,485
Payable—feet	*1,090	*1,815
Percentage payable	45	73
Value—gold—dwts.	2.4	3.1
Value—uranium—lb.	2.9	2.9
Width—inches	17	16
Inch-dwts.—gold	41	50
Inch-lb.—uranium	49	46

* Payability is based on the combined Gold and Uranium content.

THE RANDFONTEIN ESTATES GOLD MINING COMPANY, WITWATERSRAND, LIMITED.

ISSUED CAPITAL **£4,063,553**
(Divided into **4,063,553** shares of **£1** each, fully paid)

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Gold Division		
Tons milled	81,000	95,000
Gold—ounces fine	13,803	14,979
Yield per ton—dwt.	3.408	3.153
Cost per ton milled	39s. 5d.	36s. 3d.
Revenue from Gold and Sundry Revenue	£174,977	£186,470
Less : Working Costs	159,764	172,044
PROFIT	£15,213	£14,426
Uranium Division		
Tons milled	440,000	405,000
Gold—ounces fine	31,624	29,039
Yield per ton—dwts.	1.437	1.434
Uranium oxide—lb.	455,451	436,042
Yield per ton—lb.	1.035	1.077
Cost per ton milled	77s. 1d.	86s. 8d.
Revenue from Gold and Sundry Revenue	£419,787	£402,741
Estimated Net Revenue from Uranium and Acid, subject to future adjustments and representing the estimated value of output less plant operating costs and provision for interest on and repayment of loans raised for the project	£1,606,000	£1,670,000
	£2,025,787	£2,072,741
Less : Working Costs	1,695,394	1,754,648
PROFIT	£330,393	£318,093
RESULTS OF OPERATIONS		
Combined Profit for quarter	£345,606	£332,519
Less : Estimated Taxation	133,000	91,000
PROFIT AFTER TAXATION	£212,606	£241,519

NOTE : In addition to the revenue for the quarter shown above an amount of **£5,120** was received from gold sold to the S.A. Reserve Bank during the period August, 1957 to January, 1958. (The revenue for the previous period, February to July, 1957, amounted to **£6,331** and was reflected in the Report for the quarter ended 30th September, 1957.) The additional revenue has been taken into account in arriving at the provision for taxation.

CAPITAL EXPENDITURE ON GOLD DIVISION	£6,663	£2,644
CAPITAL EXPENDITURE ON URANIUM DIVISION	(£1,610) (Recoupment)	£8,839
URANIUM LOANS		
Quarterly instalment paid in respect of interest on and redemption of loans raised by this Company	£215,086	£209,738
Balance of Uranium Loans at end of quarter	£4,945,626	£5,110,357
DEVELOPMENT		
Total Development—feet	26,333	34,839
Gold Division		
Development—feet	940	108
Sampled—feet	115	30
Payable—feet	105	—
Percentage payable	91	—
Value—dwts.	7.6	—
Width—in.	77	—
Inch-dwt.	585	—
Uranium Division—Bird Reef Series		
Development—feet	25,393	34,731
Sampled—feet	3,475	5,790
Payable—feet	*1,520	*2,530
Percentage payable	44	44
Value—gold—dwt.	5.3	4.2
Value—uranium—lb.	3.3	2.8
Width—in.	18	19
Inch-dwt.—gold	95	80
Inch-lb.—uranium	59	53

* In the case of the Uranium Division payability is based on the combined Gold and Uranium content.

be alone much longer, in view of Unicorp's recent private financing raised with the object of " further development of the Kinross field ".

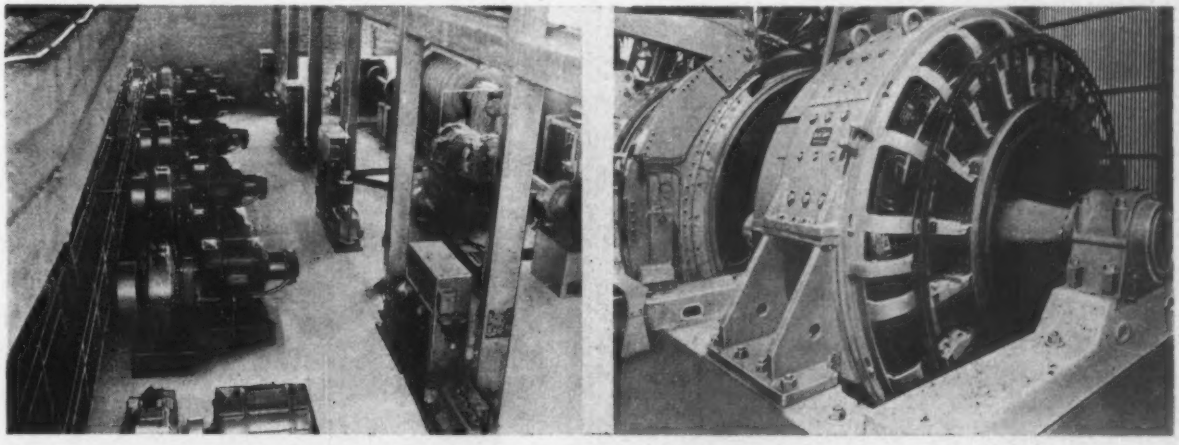
General Mining

Even the Klerksdorp mines of the General Mining organization were unable to produce anything startling in their announcements. Buffelsfontein had the lowest payability to date in its short history (although a figure of 94.1 per cent is hardly likely to give rise to any serious anxiety). Working profits from gold were down, too, but a good rise in uranium earnings, deriving from the milling of a larger tonnage of accumulated slimes, more than offset this. Stilfontein, too, had only mediocre development to report, with values showing some recovery from the low point reached last quarter, but payability further off at 83 per cent. The new Margaret shaft at this property is now down to 4,222 ft., while work on extending the mill capacity to 150,000 tons monthly is reported as proceeding satisfactorily.

Anglo-Transvaal

The third of the Lucas block mines, Hartebeestfontein Gold Mining Co., was another case of " sound but uninspiring "; but Virginia, the group's only O.F.S. producer, had its worst quarter for some time. Gold working profits were almost £72,000 down at £109,644, and a fall in combined acid and uranium earnings accentuated the decline. Higher costs were the culprit, with an accident in No. 1 shaft being contributory. Development also fell away, with only 32 per cent of a lower footage sampled proving payable at averages of 338 in. dwt. and 29.73 in. lb. The haulages being advanced into Merriespruit as part of the rescue operation for that mine made good headway, more than doubling the rate of the previous three months.

It appears that an interval in the tempo of exploitation at Riebeeck, Anglovaal's O.F.S. developer, is likely in the near future, as the haulage and airway from Loraine have now reached 10,300 ft. from that company's shaft, making it more economical to hole through from Riebeeck's own shaft, at present only 471 ft. down.



At left are tube mill drives at Stilfontein G.M., South Africa, and at right one of two 3,240 h.p. automatic Ward-Leonard winders at Premier (Transvaal) Diamond Mining.

NEW CONSOLIDATED GOLD FIELDS LIMITED

Registered Office: 49 MOORGATE, LONDON, E.C.2.

Mining Companies' Directors' Reports for the Quarter ended 31st March, 1958

All companies mentioned are incorporated in the Union of South Africa unless otherwise stated.

WEST DRIEFONTEIN GOLD MINING COMPANY LIMITED

ISSUED CAPITAL £3,520,540 IN 7,041,080 SHARES OF 10s. EACH

PRODUCTION	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Gold		
Tons milled	227,000	225,000
Total yield in ounces fine	218,283	216,159
Total yield per ton (dwt.)	19.232	19.214
Working Revenue per ton milled	239s. 8d.	239s. 8d.
Working Expenditure per ton milled	84s. 0d.	82s. 5d.
Working Profit per ton milled	155s. 8d.	157s. 3d.
Working Revenue	£2,720,225	£2,696,009
Working Expenditure	953,526	926,822
Working Profit	£1,766,699	£1,769,187
Uranium Oxide		
Tons treated in leaching plant	139,000	141,500
Total yield—uranium oxide lb.	40,503	41,532
Yield per ton leached—uranium oxide lb.	0.291	0.294
Revenue less treatment charges (subject to adjustment)	£132,000	£131,000
TOTAL WORKING PROFIT	£1,898,699	£1,900,187

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £21,420 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure—		
Gold	£501,611	£693,814
Uranium	851	8,040
Total	£502,462	£701,854
Uranium Loan Instalment	£75,600	£75,600
State's Share of Profit	£185,081	£163,087
Taxation	£544,384	£491,362

No. 5 Shaft—This shaft was sunk a distance of 391 ft. to a total depth of 5,269 ft. during the quarter ended 31st March, 1958.

DEVELOPMENT		
Carbon Leader		
Footage advanced	12,661	14,080
Footage sampled	3,070	4,000
Payable—Feet	3,070	4,000
Per cent	100.0	100.0
Stope width (in.)	42.7	42.6
Stope value—Gold (dwt./ton)	15.7	14.3
Inch-dwt.—Gold	670	609
Stope value—Uranium Oxide (lb./ton)	0.18	0.14
Inch-lb.—Uranium Oxide	7.7	6.0

THE SUB NIGEL LIMITED

ISSUED CAPITAL £885,937 IN 1,771,875 SHARES OF 10s. EACH

OPERATIONS	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	197,000	199,500
Total yield in ounces fine	48,617	50,462
Total yield per ton (dwt.)	4.936	5.059
Working Revenue per ton milled	61s. 7d.	63s. 0d.
Working Expenditure per ton milled	53s. 9d.	54s. 4d.
Working Profit per ton milled	7s. 10d.	8s. 8d.
Working Revenue	£606,545	£628,654
Working Expenditure	529,588	542,086
Working Profit	£76,957	£86,568

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £5,159 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure	£5,119	£13,745
Taxation	£23,971	£30,297
DEVELOPMENT		
Main Reef		
Footage advanced	5,661	6,129
Footage sampled	5,345	5,650
Payable—Feet	1,720	1,355
Per cent	32.2	24.0
Stope width (in.)	37.5	36.2
Stope value (dwt./ton)	8.5	11.7
Inch-dwt.	319	424

WEST WITWATERSRAND AREAS LIMITED

ISSUED CAPITAL £840,840 IN 6,726,720 SHARES OF 2s. 6d. EACH

During the quarter drilling operations were confined to Borehole No. E. 10E on the farm Gerhardminnebron No. 4. The borehole was advanced 71 ft. to a depth of 574 ft. The formation traversed consisted of cavernous dolomite and chert and progress has been very slow.

VLAKFONTEIN GOLD MINING COMPANY LIMITED

ISSUED CAPITAL £3,000,000 IN 6,000,000 SHARES OF 10s. EACH

OPERATIONS	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	145,500	146,000
Total yield in ounces fine	51,479	52,220
Total yield per ton (dwt.)	7.076	7.153
Working Revenue per ton milled	88s. 2d.	89s. 0d.
Working Expenditure per ton milled	54s. 1d.	54s. 6d.
Working Profit per ton milled	34s. 1d.	34s. 6d.
Working Revenue	£641,568	£650,065
Working Expenditure	393,716	398,022
WORKING PROFIT	£247,852	£252,043

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £5,341 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure	£5,228	*£53,429
State's Share of Profit	Nil	Nil
Taxation	£121,341	£107,202
DEVELOPMENT		
Main Reef		
Footage advanced	7,059	7,451
Footage sampled	5,680	6,640
Payable—Feet	2,710	3,520
Per cent	47.7	53.0
Stope width (in.)	42.2	40.8
Stope value (dwt./ton)	8.9	10.0
Inch-dwt.	376	408

* NOTE : Purchase of certain assets from West Vlakfontein Gold Mining Company Limited.

ROBINSON DEEP LIMITED

ISSUED CAPITAL £750,000 IN 2,000,000 " B " SHARES OF 7s. 6d. EACH

OPERATIONS	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	214,000	227,000
Total yield in ounces fine	45,734	47,971
Total yield per ton (dwt.)	4.274	4.227
Working Revenue per ton milled	53s. 3d.	52s. 8d.
Working Expenditure per ton milled	51s. 7d.	50s. 1d.
Working Profit per ton milled	1s. 8d.	2s. 7d.
Working Revenue	£569,724	£597,743
Working Expenditure	552,004	568,154
WORKING PROFIT	£17,720	£29,589

NOTES : (1) Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £4,908 received in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

(2) Operations during the month of March were affected adversely by two severe bursts in the Turf pillar area.

Capital Expenditure	£3,910	£5,800
Taxation	Nil	Nil
DEVELOPMENT		
Main Reef Leader		
Footage sampled	345	505
Payable—Feet	200	245
Per cent	58.0	48.5
Stope width (in.)	47.4	49.3
Stope value (dwt./ton)	9.3	6.9
Inch-dwt.	441	340
South Reef		
Footage sampled	110	420
Payable—Feet	—	70
Per cent.	—	16.7
Stope width (in.)	—	53.3
Stope value (dwt./ton)	—	3.6
Inch-dwt.	—	192
Pyritics		
Footage sampled	445	255
Payable—Feet	55	100
Per cent	12.4	39.2
Stope width (in.)	69.6	63.3
Stope value (dwt./ton)	5.7	4.7
Inch-dwt.	397	298
Total Development		
Footage advanced	2,101	2,945
Footage sampled	900	1,180
Payable—Feet	255	415
Per cent	28.3	35.2
Stope width (in.)	52.2	53.3
Stope value (dwt./ton)	8.3	5.7
Inch-dwt.	433	304

VOGELSTRUISBULT GOLD MINING AREAS LTD

ISSUED CAPITAL £2,514,286 IN 5,028,571 SHARES OF 10s. EACH

PRODUCTION	Quarter ended 31st March, 1958		Quarter ended 31st December, 1957	
Gold				
Tons milled	288,000		296,000	
Total yield in ounces fine	65,315		67,922	
Total yield per ton (dwt.)	4.536		4.589	
Working Revenue per ton milled	56s. 9d.		57s. 5d.	
Working Expenditure per ton milled	47s. 2d.		47s. 3d.	
Working Profit per ton milled	9s. 7d.		10s. 2d.	
Working Revenue		£817,400		£849,737
Working Expenditure		679,688		699,389
WORKING PROFIT		£137,712		£150,348
Uranium Oxide and Pyrite				
Tons milled for gold and treated in leaching plant	132,100		132,100	
Total yield—uranium oxide lb.	56,654		56,075	
Yield per ton leached—uranium oxide lb.	0.429		0.424	
Total yield—pyrite tons	9,760		10,643	
Revenue less treatment charges (subject to adjustment)		156,000		*157,980
TOTAL WORKING PROFIT		£293,712		£308,328

*Includes year-end adjustment of £4,980.

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £6,883 received in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure		
Gold	£875	£8,332
Uranium	Cr. £405	—
Uranium Loan Instalment	£72,000	£72,000
Taxation	£118,879	£96,979
DEVELOPMENT		
Main Reef		
Footage sampled	6,005	6,155
Payable—Feet	1,175	1,755
Per cent	19.6	28.5
Stope Width (in.)	40.3	39.8
Stope Value (dwt./ton)	5.0	5.5
Inch-dwt.	202	219
Kimberley Reef		
Footage sampled	3,505	3,305
Payable—Feet	915	950
Per Cent	26.1	28.7
Stope Width (in.)	42.5	48.7
Gold : Value (dwt./ton)	6.9	6.1
Inch-dwt.	293	297
Uranium Oxide : Content (lb./ton)	0.34	0.34
Inch-lb.	14.5	16.6
Total Development		
Footage advanced	11,400	12,851
Footage sampled	9,510	9,460
Payable—Feet	2,090	2,705
Per cent	22.0	28.6
Stope Width (in.)	41.3	42.9
Gold : Value (dwt./ton)	5.9	5.7
Inch-dwt.	244	245

VENTERSPOST GOLD MINING COMPANY LTD

ISSUED CAPITAL £2,450,000 IN 4,900,000 SHARES OF 10s. EACH

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	350,000	361,000
Total yield in ounces fine	85,255	87,560
Total yield per ton (dwt.)	4.872	4.851
Working Revenue per ton milled	60s. 9d.	60s. 6d.
Working Expenditure per ton milled	51s. 11d.	51s. 8d.
Working Profit per ton milled	8s. 10d.	8s. 10d.
Working Revenue	£1,062,817	£1,092,381
Working Expenditure	908,657	932,580
WORKING PROFIT	£154,160	£159,801

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £8,925 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure	£28,908	£39,570
Taxation	£35,579	£26,483
DEVELOPMENT		
Main Reef		
Footage sampled	4,130	4,885
Payable—Feet	1,485	2,515
Per cent	36.0	51.5
Stope width (in.)	59.8	56.6
Stope value (dwt./ton)	4.5	4.5
Inch-dwt.	269	255
Contact Reef		
Footage sampled	4,750	4,910
Payable—Feet	2,900	3,395
Per cent	61.1	69.1
Stope width (in.)	55.2	55.4
Stope value (dwt./ton)	11.1	11.5
Inch-dwt.	613	637
Total Development		
Footage advanced	17,321	17,485
Footage sampled	8,880	9,795
Payable—Feet	4,385	5,910
Per cent	49.4	60.3
Stope width (in.)	56.8	55.9
Stope value (dwt./ton)	8.7	8.5
Inch-dwt.	494	475

SIMMER AND JACK MINES LIMITED

ISSUED CAPITAL £843,750 IN 6,750,000 SHARES OF 2s. 6d. EACH

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	249,000	286,000
Total yield in ounces fine	49,273	53,888
Total yield per ton (dwt.)	3.958	3,768
Working Revenue per ton milled	49s. 3d.	47s. 0d.
Working Expenditure per ton milled	45s. 10d.	43s. 1d.
Working Profit per ton milled	3s. 5d.	3s. 11d.
Working Revenue	£613,532	£671,758
Working Expenditure	571,314	615,386
WORKING PROFIT	£42,218	£56,372

NOTES : (1) Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £5,496 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

(2) Results for the quarter were affected adversely by a pressure burst in the Milner Incline Shaft.

Capital Expenditure	£273	£3,759
State's Share of Profit	£1,787	£2,392
Taxation	£1,264	£3,232
DEVELOPMENT		
Main Reef		
Footage sampled	2,970	3,070
Payable—Feet	1,280	1,075
Per cent	43.1	35.0
Stope width (ins.)	50.6	49.0
Stope value (dwt./ton)	6.1	5.9
Inch-dwt.	309	289
Main Reef Leader		
Footage sampled	2,045	2,750
Payable—Feet	760	1,035
Per cent	37.2	37.6
Stope width (ins.)	41.0	42.2
Stope value (dwt./ton)	5.2	6.2
Inch-dwt.	213	262
South Reef		
Footage sampled	970	830
Payable—Feet	490	500
Per cent	50.5	60.2
Stope width (in.)	52.4	49.6
Stope value (dwt./ton)	7.8	7.8
Inch-dwt.	409	387
Total Development		
Footage advanced	7,708	9,723
Footage sampled	5,985	6,650
Payable—Feet	2,530	2,610
Per cent	42.3	39.2
Stope width (in.)	48.1	46.4
Stope value (dwt./ton)	6.2	6.4
Inch-dwt.	298	297

RIETFONTEIN CONSOLIDATED MINES LTD.

ISSUED CAPITAL £280,563 IN 1,122,252 SHARES OF 5s. EACH

	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
OPERATIONS		
Tons milled	66,000	71,500
Total yield in ounces fine	15,380	16,889
Total yield per ton (dwt.)	4.661	4.724
Working Revenue per ton milled	58s. 1d.	59s. 0d.
Working Expenditure per ton milled	45s. 2d.	45s. 9d.
Working Profit per ton milled	12s. 11d.	13s. 4d.
Working Revenue	£191,599	£210,891
Working Expenditure	149,090	163,230
WORKING PROFIT	£42,509	£47,661

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £1,697 received during the quarter in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure	Nil	Nil
Taxation	£17,894	£17,533
DEVELOPMENT		
South Reef		
Footage sampled	705	275
Payable—Feet	305	200
Per cent	43.3	72.7
Stope width (in.)	43.0	43.0
Stope value (dwt./ton)	6.7	4.8
Inch-dwt.	288	206
Main Reef		
Footage sampled	850	730
Payable—Feet	655	400
Per cent	77.1	54.8
Stope width (in.)	49.0	47.0
Stope value (dwt./ton)	11.8	10.5
Inch-dwt.	578	494
North Reef		
Footage sampled	670	535
Payable—Feet	65	80
Per cent	9.7	15.0
Stope width (in.)	44.7	43.4
Stope value (dwt./ton)	15.7	6.9
Inch-dwt.	702	299
Total Development		
Footage advanced	4,298	3,635
Footage sampled	2,225	1,540
Payable Feet	1,025	680
Per cent	46.1	44.2
Stope width (in.)	46.9	45.4
Stope value (dwt./ton)	10.6	8.5
Inch-dwt.	497	386

DOORNFONTEIN GOLD MINING COMPANY LIMITED.

ISSUED CAPITAL £4,914,000 IN 9,828,000 SHARES OF 10s. EACH

PRODUCTION	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Gold		
Tons milled	255,000	256,000
Total yield in ounces fine	106,081	106,922
Total yield per ton (dwt.)	8.320	8.353
Working Revenue per ton milled	103s. 8d.	104s. 2d.
Working Expenditure per ton milled	60s. 5d.	60s. 11d
Working Profit per ton milled	43s. 3d.	43s. 3d.
Working Revenue	£1,322,226	£1,333,276
Working Expenditure	771,312	779,771
Working Profit	£550,914	£553,505
Uranium Oxide		
Tons milled for gold and treated in leaching plant	111,000	116,000
Total yield — Uranium Oxide lb.	27,311	28,032
Yield per ton leached—Uranium oxide lb.	0.246	0.242
Revenue less treatment charges (subject to adjustment)	£44,000	£48,000
TOTAL WORKING PROFIT	£594,914	£601,505

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £10,840 received in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure—		
Gold	£194,761	£158,368
Uranium	4,356	2,237
Total	£199,117	£160,605
Uranium Loan Instalment	£9,900	£9,900
State's Share of Profit	Nil	Nil
Taxation	Nil	Nil
DEVELOPMENT		
Carbon Leader		
Footage Advanced	14,589	17,830
Footage sampled	6,175	6,940
Payable—Feet	5,670	6,300
Per cent	91.8	90.8
Stope Width (in.)	41.4	40.1
Stope value—Gold (dwt./ton)	10.2	10.8
Inch-dwt. gold	422	433
Stope value—Uranium oxide (lb./ton)	0.22	0.23
Inch-lb. Uranium oxide	9.7	9.2

LIBANON GOLD MINING COMPANY LTD.

ISSUED CAPITAL £3,968,650 IN 7,937,300 SHARES OF 10s. EACH

OPERATIONS	Quarter ended 31st March, 1958	Quarter ended 31st December, 1957
Tons milled	302,000	309,000
Total yield in ounces fine	68,763	69,067
Total yield per ton (dwt.)	4.554	4.470
Working Revenue per ton milled	56s. 9d.	55s. 9d.
Working Expenditure per ton milled	46s. 1d.	45s. 6d.
Working Profit per ton milled	10s. 8d.	10s. 3d.
Working Revenue	£857,517	£861,251
Working Expenditure	696,988	702,392
Working Profit	£160,529	£158,859

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £7,102 received in respect of gold sold to the South African Reserve Bank for the period August, 1957, to January, 1958.

Capital Expenditure	£100,755	£127,665
Taxation	Nil	Nil
DEVELOPMENT		
Main Reef		
Footage sampled	3,190	4,155
Payable—Feet	2,410	3,430
Per cent	75.5	82.6
Stope Width (in.)	48.1	47.9
Stope Value (dwt./ton)	6.6	5.9
Inch-dwt.	317	283
Contact Reef		
Footage sampled	1,525	1,985
Payable—Feet	770	890
Per cent	50.5	44.8
Stope Width (in.)	41.6	41.3
Stope value (dwt./ton)	7.4	5.0
Inch-dwt.	308	207
Total Development		
Footage Advanced	14,026	14,833
Footage sampled	4,715	6,140
Payable—Feet	3,180	4,320
Per cent	67.4	70.4
Stope Width (in.)	46.5	46.5
Stope Value (dwt./ton)	6.8	5.7
Inch-dwt.	316	265

In addition 1,794 ft. of exploratory development was carried out under prospecting permit outside the north-western boundary of the mine, during the quarter ended 31st March, 1958.

HARVIE-WATT SHAFT—The Harvie-Watt Shaft was sunk a distance of 180 ft. during the quarter ended 31st March, 1958, to a total depth of 355 ft.

FREE STATE SAAIPLAAS GOLD MINING COMPANY LIMITED

ISSUED CAPITAL £6,067,559 IN 12,135,118 SHARES OF 10s. EACH

No. 1 Shaft—The shaft was sunk 411 ft. during the quarter to a total depth of 5,061 ft. Water-bearing fissures requiring cementation retarded sinking progress. The stations to serve the 4th and 5th levels of the mine were cut and supported. Early in March the "A" Reef horizon was intersected in the shaft at a depth of 4,925 ft. below collar. A full exposure was obtained and the 16 sections sampled around the periphery of the shaft averaged 0.5 dwt. per ton over a reef channel width of 34 inches equivalent to 17 inch-dwt. The "A" Reef horizon is approximately 450 ft. above the horizon of the Basal Reef which is the economic reef in this area.

No. 2 Shaft—The shaft was sunk a further 858 ft. to a total depth of 3,595 ft. The excavation of the Relay Pump Chamber at a depth of 2,999 ft. below collar was completed during the quarter.

Housing—The building of houses in Virginia Township continued during the quarter.

General—General construction work proceeded satisfactorily.

THE LUIPAARDS VLEI ESTATE AND GOLD MINING COMPANY LIMITED.

(Incorporated in England)
(Head Office : Johannesburg)

ISSUED CAPITAL £496,911 IN 4,969,105 SHARES OF 2s. EACH

OPERATIONS	Quarter ended 31st March, 1958		Quarter ended 31st December, 1957	
Main Reef Section				
Tons milled	203,000		217,000	
Total yield in ounces fine	36,743		38,921	
Yield per ton (dwt.)	3.620		3.587	
Working Revenue per ton milled	45s. 1d.		44s. 8d.	
Working Expenditure per ton milled	43s. 9d.		43s. 6d.	
Working Profit per ton milled	1s. 4d.		1s. 2d.	
Working Revenue		£457,670		£484,816
Working Expenditure		443,802		471,978
WORKING PROFIT		£13,868		£12,838
Bird Reef Section				
Tons milled for gold and treated in leaching plant	148,000		150,000	
Total yield—Gold ounces fine	4,664		4,712	
Total yield—Uranium oxide lb.	172,435		186,250	
Yield per ton leached—Uranium oxide lb.	1.165		1.242	
Revenue from gold	£58,146		£58,730	
Revenue from uranium oxide less treatment charges	606,878		600,081	
	£665,024		£658,811	
Working Expenditure	405,024		388,811	
Working Profit (subject to adjustment)		260,000		270,000
TOTAL WORKING PROFIT		£273,868		£282,838

NOTE : Working Revenue for the quarter ended 31st March, 1958, does not include an amount of £4,468 received in respect of gold sold to the South African Reserve Bank for the period August 1957, to January, 1958.

Capital Expenditure—Main Reef	£13,013	£7,923
Bird Reef	Cr. £547	£8
Uranium Loan Instalment	£88,500	£88,500
Taxation	£72,971	£76,127
DEVELOPMENT		
Main Reef Section (Gold)		
Main Reef		
Footage sampled	1,510	2,210
Payable—Feet	930	1,360
Per cent	61.6	61.5
Stope width (ins.)	43.2	49.7
Stope value (dwt./ton)	6.8	6.5
Inch-dwt.	294	323
South Reef		
Footage sampled	2,500	2,650
Payable—Feet	2,010	2,400
Per cent	80.4	90.6
Stope width (ins.)	34.0	34.0
Stope value (dwt./ton)	5.6	6.1
Inch-dwt.	190	207
Battery Reef		
Footage sampled	50	
Payable—Feet	30	
Per cent	60	
Stope width (ins.)	37.0	
Stope value (dwt./ton)	6.5	
Inch-dwt.	241	
Total Main Reef Section (Gold)		
Footage advanced	9,012	9,664
Footage sampled	4,060	4,860
Payable—Feet	2,970	3,760
Per cent	73.2	77.4
Stope width (ins.)	36.9	39.7
Stope value (dwt./ton)	6.0	6.3
Inch-dwt.	221	250
Bird Reef Section (Uranium)		
Total Bird Reef		
Footage advanced	17,616	17,489
Footage sampled	4,220	5,185
Payable—*feet	2,290	2,440
Per cent	54.3	47.1
Stope width (ins.)	36.3	36.6
Gold: Value (dwt./ton)	1.6	2.3
Inch-dwt.	58	84
Uranium Oxide: Value (lb./ton)	2.22	3.02
Inch-lb.	80.6	110.5

* On combined Uranium Oxide/Gold content.